

Introduction

Appendix E sets out the collated contextual and baseline information, on a topic-by-topic basis, for each of the 10 assessment topics:

1. **Biodiversity and Nature Conservation** (including Fauna and Flora)
2. **Population** including demographics, socio-economics
3. **Human health**
4. **Soil** including geology and land use
5. **Water** quality and resources (including surface and ground water quality and availability)
6. **Air quality**
7. **Climatic Factors** including climate change and adaptation and flood risk
8. **Material Assets** including waste management and minerals
9. **Cultural Heritage** including architectural and archaeological heritage
10. **Landscape and Townscape**

The information for each topic is structured as follows in compliance of the SEA Directive Annex I (b) – (g) requirements:

Annex I SEA Directive Requirements	Sub section in the Topic chapter
	Introduction - provides an overview and definition of the topic.
e) The environmental protection, objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation	Summary of plans and programmes - provides an overview of the policy context in which the revocation plan sits and identifies the environmental protection, objectives, established at international, Community, national and regional level that are relevant to the Regional Strategy.
b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme	<p>Overview of the baseline - provides an overview of the relevant aspects of the current state of the environment at a national and regional level and the key topic specific baseline factors which will need to be considered as part of the assessment.</p> <p>Likely evolution of the baseline - provides an overview of how the baseline is likely to change in the absence of the revocation plan, an understanding of this is key to understanding the effects of the revocation plan on the topic area;</p>
c) The environmental characteristics of areas likely to be significantly affected	Environmental characteristics of those areas most likely to be affected – provides a summary of those key aspects of the region most likely to be affected by the plan.

Appendix E - SEA of Revocation of East Midlands Regional Strategy

Annex I SEA Directive Requirements	Sub section in the Topic chapter
<p>d) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC.</p>	<p>Summary of existing problems relevant to revocation of the Regional Strategy (such as those designated under the Wild Birds and Habitats Directives and further expanded upon in Appendix G). Given the focus on European designated conservation sites this sub-section only appears in biodiversity.</p>
<p>f) The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors. (Footnote: These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects)</p>	<p>Assessing significance –provides an outline of the illustrative guidance used to assess the potential effects for each topic.</p> <p>Assessment of significant effects of retention, revocation and partial revocation - including information on the likely significant effects.</p>
<p>g) The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;</p>	<p>Mitigation measures – including proposed measures identified.</p>

1. Biodiversity and Nature Conservation

1.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the Revocation Plan on biodiversity and nature conservation. Information is presented for both national and regional levels.

Biodiversity in this context is defined by the **Convention on Biological Diversity**¹ as ‘the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.’ Biodiversity is integral to the functioning of ecosystems and these, in turn, provide ‘ecosystem services’ which include food, flood management, pollination and the provision of clean air and water.

There are links between the biodiversity and nature conservation topic and other topics in the SEA, including water, soil and geology, land use, and climate change.

1.2 Summary of Plans and Programmes

1.2.1 International

The UK is a signatory (along with another 189 parties) to the **Convention on Biological Diversity**, Nagoya, Japan, 2010 which sets out a conservation plan to protect global biodiversity, and an international treaty to establish a fair and equitable system to enable nations to co-operate in accessing and sharing the benefits of genetic resources. The new global vision is: ‘By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.’ The parties also agreed a shorter-term ambition to ‘Take effective and urgent action to halt the loss of biodiversity, [so] that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet’s variety of life, and contributing to human well-being, and poverty eradication’.

In March 2010, the European Union (EU) agreed to **an EU vision and 2020 mission for biodiversity**:

¹ The convention uses this definition to describe ‘biological diversity’ commonly taken to mean the same as biodiversity.

- By 2050, EU biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided;
- Halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restore them insofar as is feasible, while stepping up the EU contribution to averting global biodiversity loss.

The European Commission adopted a new **EU Biodiversity strategy** to help meet this goal. The strategy provides a framework for action over the next decade and covers the following key areas:

- Conserving and restoring nature
- Maintaining and enhancing ecosystems and their services
- Ensuring the sustainability of agriculture, forestry and fisheries
- Combating invasive alien species
- Addressing the global biodiversity crisis

There are a number of EU Directives focusing on various types of wildlife and habitat that provide a framework for national action and international co-operation for conservation on land and in the sea. In particular the **Habitats Directive** and **Birds Directive** include measures to maintain or restore important natural habitats and species including through the designation of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). These Directives are transposed into British law through a number of regulations and planning policy documents. The **Freshwater Fish Directive** includes measure on the quality of fresh waters needing protection or improvement in order to support fish life.

The **Marine Strategy Framework Directive (2008/56/EC)** requires Member States to develop a marine strategy, including determining Good Environmental Status (GES) for their marine waters, and designing and implementing programmes of measures aimed at achieving it by 2020, using an ecosystem approach to marine management. It takes account both of socioeconomic factors and the cost of taking action in relation to the scale of the risk to the marine environment. Draft regulations establish a legal framework which assigns duties to the Secretary of State, Welsh and Scottish Ministers and the Department of the Environment in Northern Ireland have been published for consultation.

Under the **Ramsar Convention**, wetlands of international importance are designated as Ramsar Sites. As a matter of policy, Ramsar sites in England are protected as European sites. The vast majority are also classified as SPAs and all terrestrial Ramsar sites in England are notified as Sites of Special Scientific Interest (SSSIs).

1.2.2 National

UK

The Wildlife and Countryside Act (1981) is the main UK legislation relating to the protection of named animal and plant species includes legislation relating to the UK network of nationally protected wildlife areas: Site of Special Scientific Interest (SSSIs²). Under this Act, Natural England now has responsibility for identifying and protecting the SSSIs in England. The **Countryside and Rights of Way Act (2000)** (CROW) strengthens the powers of Natural England to protect and manage Sites of Special Scientific Interest. The CROW Act improves the legislation for protecting and managing SSSIs so that:

- Natural England can change existing SSSIs to take account of natural changes or new information;
- all public bodies have a duty to further the conservation and enhancement of SSSIs;
- neglected or mismanaged sites can be brought into favourable management;
- new offences and heavier penalties now apply to people who illegally damage SSSIs.

The **UK Biodiversity Action Plan (1994)** was the UK Government's response to signing the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit. The CBD called for the development and enforcement of national strategies and associated action plans to identify, conserve and protect existing biological diversity, and to enhance it wherever possible. The UK Biodiversity Action Plan was then established to conserve and enhance biodiversity in the UK through the use of Habitats and Species Action Plans to help the most threatened species and habitats to recover and to contribute to the conservation of global biodiversity. The plan set out a programme for conserving the UK's biodiversity. It also led to the production of 436 action plans between 1995 and 1999 to help many of the UK's most threatened species and habitats to recover. A review of the UK BAP priority list in 2007 led to the identification of 1,150 species and 65 habitats that meet the BAP criteria at UK level. As well as having national priorities and targets, action was taken at a local level to create Local Biodiversity Action Plans (LBAPS). These identify local priorities for biodiversity conservation and work to deliver agreed actions and targets for priority habitats and species and locally important wildlife and sites.

Conserving Biodiversity – The UK Approach (2007) sets out an approach to halt UK biodiversity loss by 2010 using an integrated framework of an Ecosystem Approach³. Key targets include:

- for 95% of SSSIs to be in favourable or recovering condition by 2010;
- to halt the loss of biodiversity by 2010; and

² As amended by the *Countryside and Rights of Way (CROW) Act 2000* and the *Natural Environment and Rural Communities (NERC) Act 2006*

³ The Convention on Biological Diversity (<http://www.cbd.int/ecosystem/>) defines the Ecosystem Approach as 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.'

- to reverse the long-term decline in the number of farmland birds by 2020

More recently the **Conservation of Habitats and Species Regulations (2010)** requires that sites of importance to habitats or species are to be designated and any impact on such sites or species must be considered in regards to planning permission applications.

The **Environmental Protection Act (1990)** sets out key statutory requirements for the UK regarding environmental protection (including waste and nature conservation).

The **Marine and Coastal Access Act (2009)** sets out a number of measures including the establishment of Marine Conservation Zones (MCZs) and Marine Spatial Plans. The **Offshore Marine Conservation (Natural Habitats, &c.) Regulations (2007)** apply in the 'offshore area' beyond 12 nautical miles from the UK coast. They provide protection for a variety of marine species and wild birds through a number of offences that aim to prevent damaging activities affecting protected species and habitats.

The **National Parks and Access to the Countryside Act (1949)** aims to conserve and protect countryside and National Parks through legislation.

The **Offshore Marine Conservation (Natural Habitats, &c.) Regulations (2007)** apply in the 'offshore area' beyond 12 nautical miles from the UK coast. They provide protection for a variety of marine species and wild birds through a number of offences that aim to prevent damaging activities affecting protected species and habitats.

England

The **Natural Environment and Rural Communities (NERC) Act (2006)** establishes Natural England as the main body responsible for conserving, enhancing and managing England's natural environment. It also covers biodiversity, pesticides harmful to wildlife and the protection of birds.

The **Natural Environment White Paper (2011)** recognises that nationally, the fragmentation of natural environments is driving continuing threats to biodiversity. It sets out the Government's policy intent to:

- improve the quality of the natural environment across England;
- move to a net gain in the value of nature;
- arrest the decline in habitats and species and the degradation of landscapes;
- protect priority habitats;
- safeguard vulnerable non-renewable resources for future generations;
- support natural systems to function more effectively in town, in the country and at sea; and

- create an ecological network which is resilient to changing pressures.

By 2020, the Government wants to achieve an overall improvement in the status of the UK's wildlife including no net loss of priority habitat and an increase of at least 200,000 hectares in the overall extent of priority habitats. Under the White Paper, the Government has also put in place a clear institutional framework to support nature restoration which includes Local Nature Partnerships creating new Nature Improvement Areas (NIAs).

Biodiversity 2020: A strategy for England's wildlife and ecosystem (2011) is a new biodiversity strategy for England that builds on the Natural Environment White Paper and provides a comprehensive picture of the Government is implementing the international and EU commitments. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.

The ***National Planning Policy Framework (NPPF) (2012)*** replaces the majority of previously used planning policy including Planning Policy Statement 9 on Biodiversity and Geological Conservation. The NPPF includes key policies to ensure the planning system contributes to and enhances the natural and local environment by:

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the wider benefits of ecosystem services;
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

The Framework states that, when preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Local planning authorities are expected to set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity or landscape areas will be judged. In doing so they must take into account the policies in the Framework including those which set out the circumstances where in order to conserve and enhance biodiversity planning permission should be refused.

1.2.3 East Midlands Regional Plans

There are 157 Local Biodiversity Action Plans (LBAPs) in England, of which the following relate to the East Midlands (as at March 2011):

A Biodiversity Action Plan for Northamptonshire	Northamptonshire
A Greenprint for Chesterfield	Chesterfield
Action for Wildlife in Nottinghamshire	Nottinghamshire
Corporation of the Level of Hatfield Chase Internal Drainage Board (IDB) Biodiversity Action Plan	East Midlands
Fairham Brook Internal Drainage Board (IDB) BAP	Nottinghamshire
Finningley Internal Drainage Board (IDB) Biodiversity Action Plan	East Midlands
Gainsborough Internal Drainage Board Biodiversity Action Plan	West Lindsey
Greenprint for Derby City	Derby
Laneham Internal Drainage Board (IDB) Biodiversity Action Plan	Nottinghamshire
Leicester, Leicestershire and Rutland Biodiversity Action Plan	East Midlands
Lincolnshire Biodiversity Action Plan	Lincolnshire
Lindsey Marsh Drainage Board Biodiversity Action Plan	Lincolnshire
Lowland Derbyshire Biodiversity Action Plan	Derbyshire
Messingham IDB Biodiversity Action Plan	Lincolnshire
North East Lindsey Drainage Board Biodiversity Action Plan	Lincolnshire
Northamptonshire Biodiversity Action Plan, 2nd Edition	Northamptonshire

LBAPs are normally prepared and coordinated at the county level. The plans usually include actions to address the needs of the UK priority habitats and species in the local area, together with a range of other plans for habitats and species that are of local importance or interest.

1.3 Overview of the Baseline

1.3.1 England

There are over 4,100 SSSIs in England, covering 1,076,986ha (including open water and coastal habitats). In terms of land area, approximately 8% of England is designated as SSSI.⁴

⁴ Natural England <http://www.naturalengland.org.uk/ourwork/conservation/designatedareas/sssi/default.aspx>

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In England there are 250 SACs, 85 SPAs and 74 RAMSAR sites.⁵

As at 01 May 2012 the overall condition of SSSIs in England was assessed by Natural England to be 37.25% as area favourable; 59.4% area unfavourable recovering; 2.21% area unfavourable no change; 1.11% area unfavourable declining and 0.03% area destroyed/part destroyed.⁶ The reasons for adverse conditions at sites are set out in **Table 1.1**. This indicates that planning permission (general) was linked to 0.93% of the area not meeting the Natural England Public Service Agreement (PSA) targets and planning permission (mineral and waste) 0.25%.⁷ Whilst these targets have been superseded, they were linked to delivering the commitments in the 2007 Conserving Biodiversity Strategy such as the requirement to have 95% of SSSIs in a favourable or recovering condition by 2010.

Table 1.1 Reasons for Adverse Condition Summary

Reason for adverse condition	Percentage of unit area not meeting the PSA target	Reason for adverse condition	Percentage of unit area not meeting the PSA target
Inappropriate scrub control	14.46%	Fire - other	1.73%
Under-grazing	13.95%	Inappropriate coastal management	1.71%
Overgrazing	11.66%	Vehicles - other	1.68%
Water pollution - agriculture/run off	11.31%	Moor burning	1.62%
Inappropriate water levels	10.48%	Earth science feature obstructed	1.51%
Invasive freshwater species	8.75%	Vehicles - illicit	1.33%
Forestry and woodland management	5.90%	Planning permission - general	0.93%
Drainage	5.27%	Inappropriate css/esa prescription	0.79%
Coastal squeeze	5.16%	Sea fisheries	0.71%
Inappropriate weirs dams and other structures	4.46%	Air pollution	0.60%
Inappropriate weed control	4.28%	Peat extraction	0.50%
Water pollution – discharge	4.25%	Inland flood defence works	0.40%
Inappropriate cutting/mowing	3.95%	Game management - pheasant rearing	0.35%
Deer grazing/browsing	3.60%	Game management - other	0.32%
Public access/disturbance	3.30%	Inappropriate dredging	0.25%
Inappropriate ditch management	3.19%	Planning permission - other mineral and waste	0.25%

⁵ JNCC Protected sites <http://jncc.defra.gov.uk/page-1456>

⁶ <http://www.sssi.naturalengland.org.uk/special/sssi/reportAction.cfm?Report=sdr115&Category=N&Reference=0>

⁷ <http://www.sssi.naturalengland.org.uk/special/sssi/reportAction.cfm?Report=sdr117&Category=N&Reference=0>

Reason for adverse condition	Percentage of unit area not meeting the PSA target	Reason for adverse condition	Percentage of unit area not meeting the PSA target
Siltation	3.06%	Inappropriate pest control	0.22%
Fish stocking	2.75%	Earth science feature removed	0.14%
Fertiliser use	2.67%	Inappropriate stock-feeding	0.09%
Water abstraction	2.06%	Pesticide/herbicide use	0.04%
Agriculture – other	1.77%	Other	14.07%

1.3.2 East Midlands

The biodiversity of the East Midlands is recognised as amongst the poorest of all the English regions⁸. The areas of highest biodiversity are within the Peak District and along the Lincolnshire Coast. The region's key wildlife habitats, of which the East Midlands has a significant proportion of England's total, include lowland wood pasture and parkland, lowland hay meadows, saltmarsh and mudflats⁹. The region's rivers support internationally important wetland habitats, and former industrial sites now represent some of the best sites for limestone grassland, dragonflies and ground-nesting birds¹⁰.

Nationally important habitats of which the East Midlands hosts more than 10% of the UK total include: lowland wood pasture and parkland (22.3%), lowland hay meadows (12%), saltmarsh (15.4%) and mudflats (18.4%). Nationally important species supported in the region include:

- Mammals – common seal, water vole;
- Birds – skylark, gadwall, golden plover;
- Amphibians – great crested newt;
- Fish – spined loach;
- Insects – marsh moth, bast bark beetle; and
- Plants – cornflower, sea lavender.

The region has seen a very significant decline in biodiversity, partly as a result of the heavy intensification of agriculture, since the Second World War. This decline has been at a faster rate than almost anywhere else in Britain. This trend is particularly apparent in Leicestershire, Northamptonshire and Nottinghamshire where 70% of scarce plant species have become extinct since 1970¹¹. Agricultural

⁸ Action for Regional Biodiversity: case studies making a difference. East Midlands Biodiversity Forum (EMRA 2000).

⁹ Putting Wildlife Back on the Map – The East Midlands Biodiversity Strategy. EMRA and the East Midlands Biodiversity Forum. Full Strategy May 2006.

¹⁰ Towards an Atlas of Biodiversity in the East Midlands (Environment Agency and Leicestershire County Council 2004)

¹¹ East Midlands Integrated Toolkit – Natural Resources (level 1). <http://www.emtoolkit.org.uk>

grassland has experienced a long-term reduction and lowland herb rich grassland has declined drastically. There have also been significant declines in numbers of farmland and woodland birds (e.g. wood warbler, redstart) and wetland birds (e.g. snipe). All counties in the region have experienced major declines in species-rich grasslands and across the region wetlands have been drained and heathlands converted to agriculture or commercial forestry plantations. On average one plant species becomes extinct every year in each county in the region. Only small areas remain of many habitat types, with species often isolated in widely scattered remnants. The value of over half the region's nationally important wildlife sites is still in decline. Between 1990 and 1998, there was a decrease of 11.4% in the mountain, moor, heath and down broad habitat category.

Overall, the baseline data indicates that biodiversity levels in the region are the lowest of any region in England. However, the region has a number of ecological sites of national and international importance which support a number of key habitats and species – particularly in two large areas on the periphery of the region. Other areas supporting biodiversity are often small, geographically isolated and surrounded by areas with little natural or semi-natural habitat.

Designated Sites

The region has a relatively low level of statutory protection for nature conservation and has the lowest proportion of land area designated as Sites of Special Scientific Interest in England. Key facts¹² in relation to SSSIs in the East Midlands are:

- The Region has 392 Sites of Special Scientific Interest (SSSIs), covering an area of 165,000ha. Nearly 40 per cent (62,046ha) is located in The Wash.
- With the exception of Derbyshire, all counties in the East Midlands have less than two per cent of the land designated as terrestrial SSSI.
- The Wash is the largest SSSI in England, containing 14 per cent of England's coastal SSSI habitat. It is also designated as Special Area of Conservation (SAC), a Ramsar site, and a Special Protection Area (SPA). It holds the largest colony of common seals in the UK – about 90 per cent of the English population.
- Nationally significant heathlands occur in Nottinghamshire and the Lincolnshire Cover Sands (10,536ha designated as SSSI).

¹² Environment Agency (no date) East Midlands State of the Environment http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Bio.pdf

- The main rivers and their tributaries in the region – Trent, Derwent, Soar, Nene and Witham – provide the main focus for biodiversity. Man made reservoirs and wetlands such as Rutland Water, Attenborough Gravel Pits, and canals (Cromford, Chesterfield, Grantham) are also important for wildlife and are designated as SSSIs.
- In September 2010, 98 per cent of the SSSI areas in the East Midlands were in favourable condition (**Table 1.2**) which is a slight increase from 96 per cent in 2009 and 93 per cent in 2008 and means the 2010 target (of 95 per cent being in favourable condition) has been achieved¹³.
- The three counties with the greatest proportion by area of SSSIs meeting the PSA target are Lincolnshire (at 99.5 per cent), Derbyshire (at 98.9 per cent) and Northamptonshire (at 98.3 per cent). A greater proportion of SSSIs areas in Leicestershire and Nottinghamshire, despite improvements over the previous 12 months, are still not in favourable condition with the counties still having not achieved the 2010 target (Leicestershire achieved 90.4 per cent in 2010 compared to 81.1 per cent in 2009 and Nottinghamshire achieved 93.7 per cent in 2010 compared to 88.5 per cent in 2009)¹⁴.
- The Wash is currently the only site in the UK which is designated for reefs built out of sediment by the ross worm (*Sabellaria spinulosa*). The 15-30 cm high raised reefs are created when worms live at high densities and build their tubes around those of their neighbours. Reefs are important as they hold two or three times more species than areas without reefs, including commercial species such as shrimps and crabs. The offshore sandbanks and ross worm reefs have been identified as having the potential to become a marine Special Area of Conservation (SAC).¹⁵

Table 1.2 SSSI condition in the East Midlands (2011)

	Sites	Units	Units Assessed
Total Number	397	2,277	2,277
Total Area (ha)	166,366.25	132,776.19	132,776.19
	Area (ha)	Percentage	
Meeting PSA Target	130,136.38	98.01	
Favourable	58,609.84	44.14	
Unfavourable Recovering	71,526.54	53.87	
Unfavourable No Change	1,720.12	1.30	
Unfavourable Declining	895.97	0.67	
Part Destroyed/Destroyed	23.72	0.02	

Figure 1.1 illustrates the distribution of designated sites across the East Midlands, and notwithstanding their overwhelming good or recovering condition, shows their high degree of fragmentation. The East

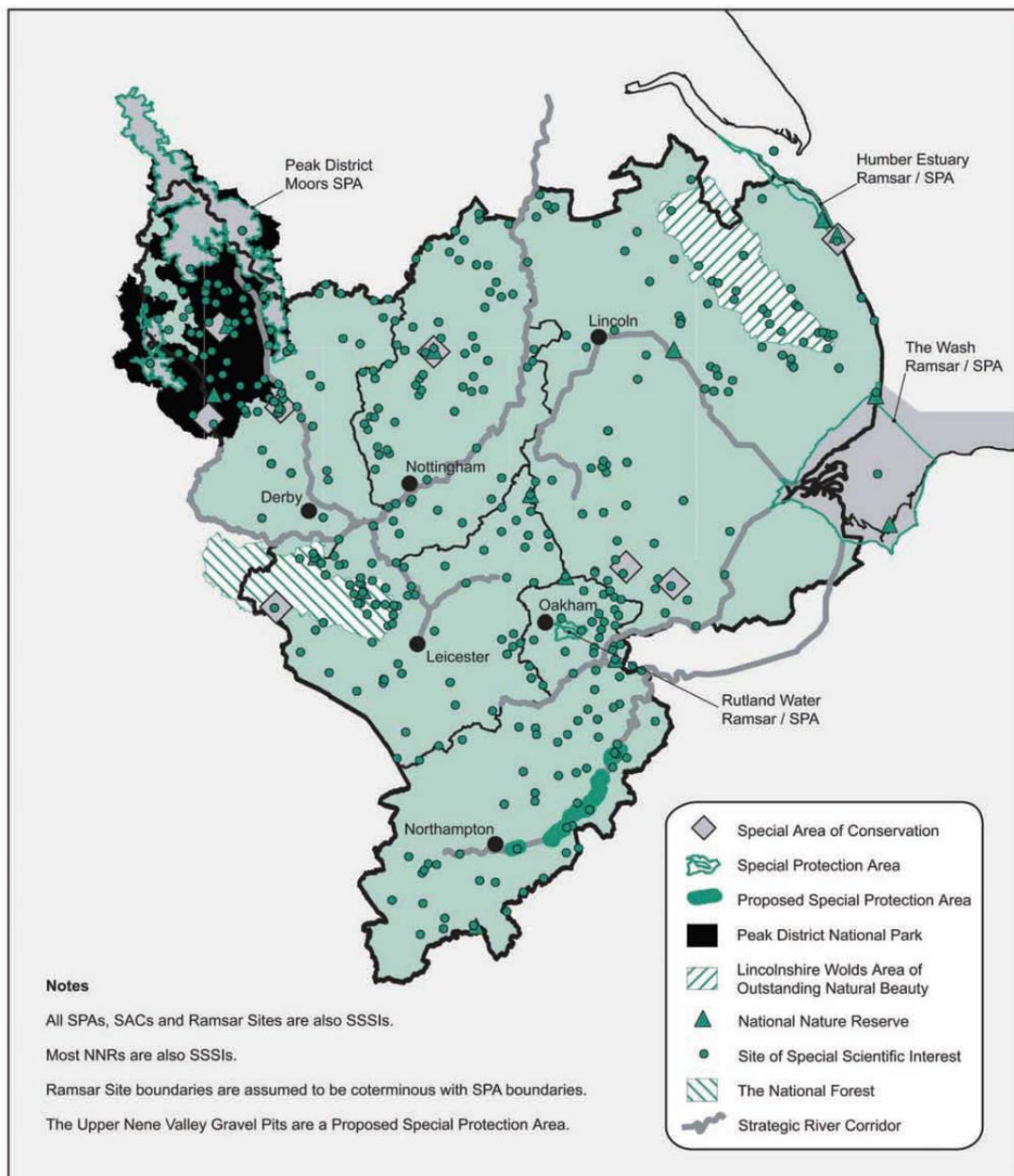
¹³ East Midlands Councils (February 2011) The East Midlands in 2009/10

¹⁴ East Midlands Councils (February 2011) The East Midlands in 2009/10

¹⁵ Natural England (2009) State of the Environment in the East Midlands

Midlands Annual Monitoring Report for 2009/10 notes that: “Despite losses, areas of nationally important biodiversity do remain, in the shape of significant woodland sites (Rockingham Forest, Leighfield Forest, Bardney Limewoods); upland areas (South Pennines Moors, Charnwood); heathland (The Coversands and Sherwood); grassland (the White Peak Carboniferous Limestone grasslands, the coastal grazing marshes and the Lincolnshire and Rutland Limestone) as well as Lincolnshire’s internationally important coastal habitats. These sites provide important tourism assets and other vital services, such as carbon storage and clean water from peat bogs, or wave energy dispersion from saltmarsh and mudflats.”¹⁴

Figure 1.1 Designated Wildlife Sites in the East Midlands

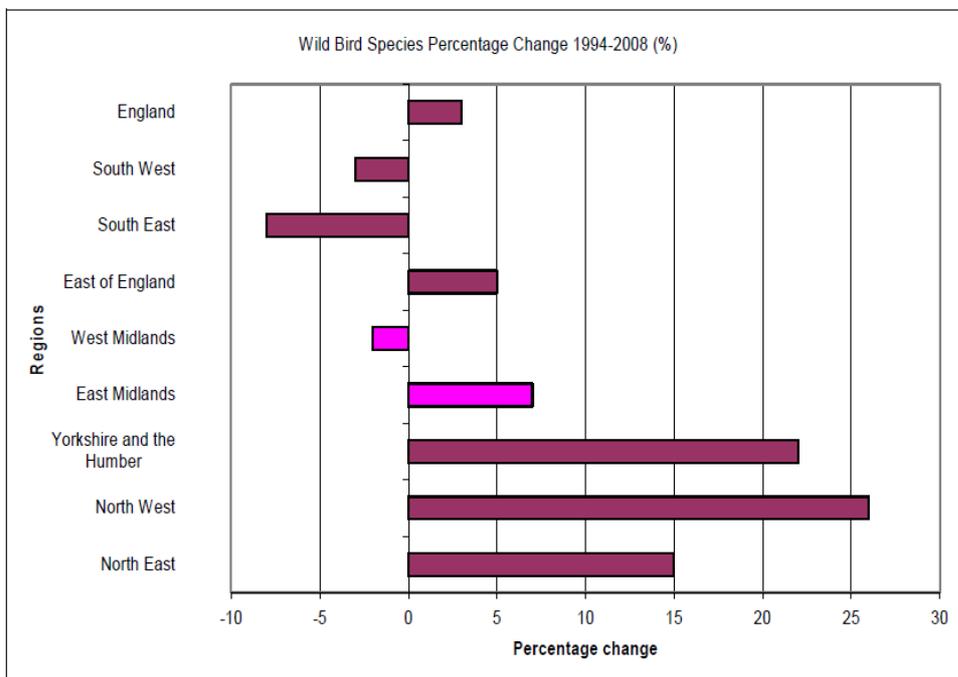


The East Midlands is the least wooded region in the country with around 5% cover (80,000 hectares), below the National average of 8%. Over 60% of this is broadleaf, less than 20% is conifer and the remainder is mixed woodland and associated habitats. There are almost 6500 woods over 2 hectares in size in the region and the average woodland covers around 11 hectares. Some 25,000 hectares (32%) of the region's woods are on ancient woodland sites (sites which have been under more or less continuous tree cover since at least 1600 AD). Around half of these support semi-natural woodlands which retain a high proportion of native trees and shrubs. These include Sherwood Forest, Rockingham Forest, Leigh Forest and Bardney Limewood. However, between 1995 and 2005, over 700 hectares of new woodland has been planted as part of the National Forest initiative.

Indicator Species and Semi-Natural Habitats¹⁶

A key indicator of biodiversity is woodland and farmland birds. **Figure 1.2** shows a 7% improvement in the East Midlands over the period 1994-2008, almost twice that for England as a whole. However, this figure masks a decline in farmland birds of 17 per cent however, and an increase in woodland birds of 13 per cent.

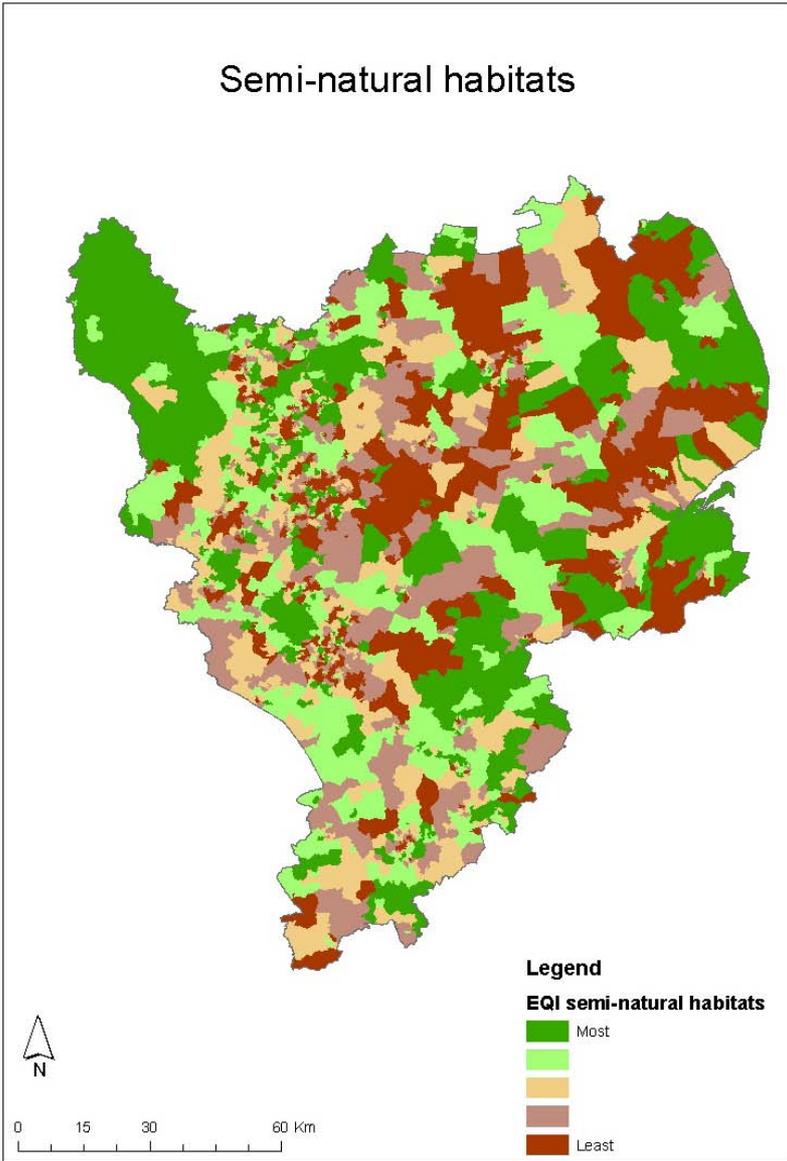
Figure 1.2 Wild Bird Species Change



¹⁶ Environment Agency (no date) East Midlands State of the Environment http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Bio.pdf

A related indicator is the presence of semi-natural habitats (**Figure 1.3**), which shows the significant variability across the region and clustering in certain areas (notably the Peak District National Park to the west, and coastal fringe areas to the east).

Figure 1.3 Proportion of Semi-Natural Habitats



Climate change is considered by the Environment Agency to be the biggest threat to wildlife and the natural environments they inhabit. Increased temperatures and sea level rise will impact on the region's habitat locations and may change the species and wildlife it supports. For example:

- Increases in temperature will see a decline in species such as twite, man orchid and mountain ringlet who need a cooler habitat;
- Increases in temperature will see an increase in the population of little egret, bee-wolf and polecat colonising as they adjust to more suited warmer temperatures;
- Increases in temperature may lead to declining water resources, which will impact on tree species and other woodland habitats; and
- Increases in sea level, without appropriate mitigation, will see a decline in saltmarshes and mudflats and hence could lead to a decline in migratory birds.

1.4 **Environmental Characteristics of those Areas most likely to be Significantly Affected**

The overall scale of development, across large parts of the Region, will be significant, and will noticeably affect the character of many locations, depending upon the extent to which development will take place within existing built-up areas, or on greenfield sites, and also on the amount of infrastructure built, employment land developed, community facilities provided, traffic generated, and environmental improvements achieved.

Nearly three-quarters of all new dwellings are to be provided within the Three Cities and Southern Sub-Areas, with around 40% to be provided within the Three Cities Sub-Area and around 25% in the Southern Sub-Area. Other areas are also likely to see a significant increase in dwelling provision include a number of districts in the vicinity of the cities of Nottingham, Leicester and Derby.

The cumulative effects of development should also be taken into account. For example, the impacts on the non-designated environment should also be considered, especially where this would adversely affect landscape character, or would lead to erosion in the overall biodiversity resource. As part of the SA, it was recommended by members of the SA Steering Group that any environmental capacity issues should be highlighted that may be issues under the proposed draft Regional Plan. From the work undertaken on the SA, the following capacity issues are the most pertinent to have been identified:

- Availability of water resources, especially in the East Midlands (Derbyshire, Leicestershire, and Nottinghamshire) and Lincolnshire Fens water resource zones.
- The capacity of sewage treatment works to accommodate further development without adverse effects on water quality, especially in the Northern and Three Cities Sub-Areas.
- The achievement of air quality and greenhouse emissions targets, especially with respect to transport.
- The potential permanent loss of best and most versatile land to development, for example around Boston.
- Flood risk in the Southern and Three Cities Sub-Areas, and possibly parts of the coast.

- The capacity of historic settlements to accommodate further development, especially Lincoln, but also smaller settlements such as Stamford.
- Despite the relatively small amount of development to be accommodated in the Peak Sub-Area, there could be some capacity issues with respect to landscape and biodiversity.
- It is uncertain at this stage whether there are capacity issues with respect to biodiversity more generally, although it should be borne in mind that the biodiversity interest of the Region is already comparatively low.

With respect to these and other environmental capacity issues, it is important to bear in mind that whether or not development will breach the capacity of the Region to accommodate it depends as much on the way that development is delivered as how much. For example, if the environmental policies in the Regional Plan are strictly applied, then damage to the environment should be avoided in the first instance. If damage cannot be avoided then it should be considered whether there are other ways or locations of delivering the Regional Plan objectives that will avoid such damage. If no such alternatives exist, then it will be important to ensure that any adverse effects are minimised through mitigation, and then compensation. Finally, it will also be important to consider how development proposals can be utilised to deliver improvements to the environment where it could be considered that capacity limits have been breached in the past (i.e. make good past damage).

1.5 **Summary of Existing Problems Relevant to Revocation of the Plan**

- **Loss of biodiversity:** There is a high rate of biodiversity loss in the region, including the highest rate of plant extinction in England.
- **Habitat loss and fragmentation:** A significant percentage of habitat has been lost and what remains is often fragmented – restricting the range of the species.
- **Small number of protected habitats:** The region has the smallest number of protected areas of all English regions.
- **Agricultural practices:** Intensification of agriculture has exacerbated the decline in biodiversity.
- **Development pressure:** This is an issue, especially in the Milton Keynes South Midlands Growth Area.
- **Climate change and pollution:** These issues will have a long-term effect on biodiversity.

1.6 Likely Evolution of the Baseline

1.6.1 Likely Evolution of the Baseline - England

Results of the 2008 reporting round of the UK Biodiversity Action Plan indicate that in England:⁷

Habitats:

- 17% of priority habitats were increasing (compared to 24% in 2005);
- 12% of priority habitats were stable (compared to 12% in 2005);
- 12% of habitats were declining (continuing/accelerating) (compared to 2% in 2005);
- 24% of habitats were declining (slowing) (compared to 34% in 2005);
- 24% of habitats were fluctuating (compared to 7% in 2005); and
- the status of 10% of habitats was unknown (compared to 20% in 2005).

Species:

- 8% of species were increasing (no change since 2005);
- 22% of species were stable (no change since 2005);
- 24% of species were fluctuating (compared to 19% in 2005);
- 6% of species were declining (slowing) (compared to 8% in 2005);
- 8% of species were declining (continuing/accelerating) (compared to 10% in 2005);
- 3% of species were lost (pre BAP publication) (no change since 2005);
- 5% of species showed no clear trend (compared to 7% in 2005); and
- the status of 21% of species was unknown (no change since 2005).

In England, in 2009 over 80% of SACs and SPAs were in favourable or recovering condition. For the decade up to 2008, SSSI condition in England has experienced a dramatic improvement in the overall site condition over the last 10 years as a result of protection and management¹⁷. However, some

¹⁷ Natural England (2008) State of the Environment Report

species in particular continue to be impacted upon. The trend in populations of breeding wading birds on unprotected lowland wetland grasslands is towards a major decline.¹⁸

Despite the increase in area protected for its biodiversity there is concern that the protected site network as it exists is insufficient to protect biodiversity in England as a whole and that some species and habitats will be confined to these protected areas and more vulnerable to pressures and threats, including climate change.¹⁹

1.6.2 Likely Evolution of the Baseline - East Midlands

The SEA Directive requires a consideration of the evolution of the baseline without the proposed plan or programme being in place. Slightly confusingly in this assessment, ‘without the proposed plan or programme’ actually refers to the plan to revoke the regional strategy. So the evolution of the baseline without the plan will mean in this instance, the evolution of the baseline with the existing regional strategy in place. Therefore, the assessment has used the findings of the 2009 Sustainability Appraisal and 2008 Appropriate Assessment²⁰ of the East Midlands Regional Plan, key ongoing issues being set out in Table 1.3.

Table 1.3 Key Biodiversity Issues and Likely Trends

Issue	Likely Trend
Impacts on sites as a result of changes in water supply	Although there are rigorous procedures in place to review individual consents and development proposals, the scale and rate of development is such that there is an increasing risk of region-wide shortages and cumulative effects on sites, together with associated effects of reduced water supply on water quality (e.g. through concentration of pollutants in smaller volumes of water).
Impacts on sites as a result of changes in water quality	The main potential risk associated with the policies of the Regional Plan is the increased demand on the sewage infrastructure arising from proposed new housing and associated water quality changes.
Flood risk and the management of coastal squeeze	Although flood risk is a significant factor in the East Midlands Region, the adoption of a range of appropriate flood risk management policies and mitigation measures would enable the Regional Plan policies to be implemented in a sustainable manner which would protect people, property and the natural environment from flooding. Further significant development within the Lincolnshire Coastal area could constrain future attempts to maintain saltmarsh and mudflat habitat.
Air quality	Exacerbation of the adverse effects of poor air quality through further diffuse pollution.
Disturbance from renewable energy development	The ‘in combination’ impacts of multiple wind farms are likely to have a particularly severe impact on birds that move between different European sites along the coast.
Disturbance from tourism and recreation	An increasing population in the region, allied with a strong push to increase tourism potential in the region are expected to lead to greater impacts on habitats and wildlife through physical disturbance and habitat fragmentation on several sites.

¹⁸ Joint Nature Conservation Committee, Protected Areas, <http://www.jncc.gov.uk/page-4241>)

¹⁹ Lawton *et al* (2010) Making Space for Nature: A review of England’s Wildlife Sites and Ecological Network

²⁰ Treweek Environmental Consultants (2008) Appropriate Assessment of the East Midlands RSS Proposed Changes

Minerals and waste	Likely significant effects due to possible reactivation of permissions and levels of aggregate apportionment.
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Key policies in the Regional Plan which seek to directly address biodiversity interests are:

1. Regional Core Objectives
26. Protecting and Enhancing the Region's Natural and Cultural Heritage
28. Regional Priorities for Environmental and Green Infrastructure
29. Priorities for Enhancing the Region's Biodiversity
30. Regional Priorities for Managing and Increasing Woodland Cover
32. A Regional Approach to Water Resources and Water Quality
33. Regional Priorities for Strategic River Corridors
34. Priorities for Management of the Lincolnshire Coast
36. Regional Priorities for Air Quality

Together, these policies present a wide-ranging and, in principle, comprehensive approach to the protection and management of biodiversity interests, recognising their intrinsic role in underpinning the health and character of the Region.

1.7 Assessing Significance

Table 1.4 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the biodiversity objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 1.4 Approach to Determining the Significance of Effects on Biodiversity

Effect	Description	Illustrative Guidance
++	Significant positive	<ul style="list-style-type: none"> Alternative would have a significant and sustained positive impact on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species) Alternative would have a strong positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function). Alternative will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to such sites.
+	Positive	<ul style="list-style-type: none"> Alternative would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species). Alternative may have a positive net effect on local biodiversity (e.g. – through reduction in disturbance/pollutant emissions, or some habitat creation leading to temporary improvement to ecosystem structure and function). Alternative will enhance existing public access to areas of wildlife interest in areas where there is some demand for such sites.
0	No (neutral effects)	<ul style="list-style-type: none"> Alternative would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species). Alternative would not affect public right of way or access to areas of wildlife interest.
-	Negative	<ul style="list-style-type: none"> Alternative would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through a minor increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function). Alternative will decrease public access to areas of wildlife interest in areas where there is some demand for such sites.
--	Significant negative	<ul style="list-style-type: none"> Alternative would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for. Alternative would have strong negative effects on local biodiversity (e.g. – through an minor increase in disturbance/pollutant emissions, or considerable loss of habitat leading to long term loss of ecosystem structure and function).
?	Uncertain	<ul style="list-style-type: none"> From the level of information available the impact that the Alternative would have on this objective is uncertain.

1.8 **Assessment of the Significant Effects of Revocation and Retention**

Table 1.5 summarises the significant effects identified in the detailed assessment of the East Midlands Regional Plan policies against the biodiversity topic.

Table 1.5 Significant Effects against the Biodiversity Topic

Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
1. Regional Core Objectives	Revocation	0	0	+	This wide-ranging policy, which includes environmental protection and enhancement should have long term benefits for biodiversity interests, although potential conflicts with other aspects of the plan, notably house- and road-building, are recognised. Notwithstanding the provisions of the NPPF, revocation could mean less efficient delivery of wider strategic biodiversity interests because of loss of a region-wide overview.
	Retention	0	0	++	
8. Spatial Priorities in around the Peak Sub-Area	Revocation	0	+	++/?	This policy is principally aimed at the conservation and enhancement of the Peak District National and as such will, if properly implemented, secure the long-term interests of biodiversity. However the policy is aspirational and dependent upon the delivery of a wide range of other policies and programmes, and as such no differences between policy revocation and retention are anticipated.
	Retention	0	+	++/?	
28. Priorities for Environmental and Green Infrastructure	Revocation	++	++	++	This policy contains detailed criteria aimed at integrating efforts in delivery, protection and enhancement of 'environmental infrastructure' and as such presents a clear agenda for taking these matters forward. As such retention is in principle more positive than revocation where the longer term outcomes of alliances which may be formed could be uncertain.
	Retention	++	++	++	
29. Priorities for Enhancing the Region's Biodiversity	Revocation	+	++	++	As with Policy 28, the specific aspirations of the policy for a co-ordinated approach to delivering biodiversity interests across the Region. This may not mean that there is any less protection (being provided for under the NPPF) but opportunities for enhancement of biodiversity networks could be lost over the longer term as a more localist approach is adopted.
	Retention	+	++	++	
30. Priorities for Managing and Increasing Woodland Cover	Revocation	++	++	++	Effects are as for Policies 28 and 29.
	Retention	++	++	++	

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Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
31. Priorities for the Management and Enhancement of the Region's Landscape	Revocation	+	+	++	The close connection between biodiversity and landscape interests means that this policy could be influential on biodiversity, particularly in respect of the area-specific initiatives promoted under this policy. Again, the longer term interests of biodiversity could in principle be better served through a Region-wide policy which seeks provide co-ordination for a wide range of disparate initiatives.
	Retention	+	+	++	
33. Regional Priorities for Strategic River Corridors	Revocation	+	+	+/?	Recognising the pan-Regional role of river corridors as a critical aspect of biodiversity, this Policy (although brief) is a focal point for addressing river corridor issues. Although the role could be taken up by the Environment Agency, it could be argued that revocation would lose some of the momentum of integration amongst local authorities in addressing the issue.
	Retention	+	++	++	
35. A Regional Approach to Managing Flood Risk	Revocation	+	+	++	Whilst being a broadly-drawn policy, over the longer term, it has the potential to deliver significant positive benefits for biodiversity over the longer term. However, the role of the Environment Agency, in partnership with local authorities, is central to the process region-wide and therefore no differences between revocation and retention are to be expected.
	Retention	+	+	++	
43. Regional Transport Objectives	Revocation	0	-	--/?	The transport priorities for the Region whilst being balanced between modes nevertheless promotes the development of the transport infrastructure across the Region which, over the longer term, could mean the compromising of biodiversity interests. This is particularly the case for road building where a combination of land-take (often significant for road schemes) and increases in emissions could have a longer term, cumulative negative impact. Assuming the continuance of transport schemes through other means, either locally, sub-regionally and regionally, the effects relate equally to the revocation and retention of the policy.
	Retention	0	-	--/?	
44. Sub-Regional Transport Objectives	Revocation	0	-	--/?	Effects are as for Policy 43
	Retention	0	-	--/?	
Three Cities SRS5. Green Infrastructure and the National Forest	Revocation	++	++	++/?	Whilst not being comprehensive, this policy does focus attention on the role of GI and the National Forest in particular in delivering environmental, and by implication biodiversity, enhancement. These initiatives will carry on in the absence of the Regional Strategy, but with some uncertainty in the longer term over co-ordination of initiatives.
	Retention	++	++	++	
Northern SRS4. Enhancing Green Infrastructure Through Development	Revocation	++	++	++/?	As with Three Cities SRS5, this is a general and brief policy which sets out a broad aspiration for GI provision, but again with potential longer term uncertainty over implementation.
	Retention	++	++	++	

1.8.1 Effects of Revocation

The Government's aim, as announced in the Natural Environment White Paper is that by 2020, there will be an overall improvement in the status of wildlife. The planning system can make an important contribution to achieving these goals, although it has to be recognised that the most influence will come from land uses outside the control of the planning system, and in particular, agriculture, and will depend on the uptake and success of agri-environment schemes.

Key indicators for biodiversity are the number and extent of protected areas and their condition. In particular, the Natural Environment White Paper states that 90% of priority wildlife habitats are should be in recovering or favourable condition by 2020. There will be more, bigger, better and less-fragmented areas for wildlife, including no net loss of priority habitat and an increase of at least 200,000 hectares in the overall extent of priority habitats. At least 50% of Sites of Special Scientific Interest will be in favourable condition, while maintaining at least 95% in favourable or recovering condition.

Despite policy safeguards for the protection of biodiversity interests, it is far from certain that this would be the outcome and will depend on decisions taken by local authorities in consultation with their communities, and by businesses and other partners, on the future scale, nature and location of housing and other development in order to meet identified need. This is particularly the case with respect to non-designated sites and their associated biodiversity.

Removal of the target for the use of previously developed land could have benefits for biodiversity where it reduces the pressure on local planning authorities to develop areas of brownfield land which have biodiversity interest. In its place, paragraph 111 of the NPPF encourages the effective use of land by re-using land that has been previously developed (i.e. brownfield land), provided that it is not of high environmental value. However, moving some development away from brownfield land may increase the pressure to locate development on non-designated areas of the countryside. The effects of this are uncertain as they will depend on the quantum of development away from urban areas and on site specific circumstances, including the biodiversity value on and in the vicinity of the development. It should also be recognised that well planned development which optimises the opportunities for biodiversity - as envisaged in the NPPF - can result in net gains to biodiversity.

1.8.2 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies and retaining the non spatial policies; or
- Retention of policies, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on biodiversity associated with the revocation of the quantitative policies are summarised in **Table 1.5** were, apart from the regional and sub-regional transport objectives, the effects associated with the policy revocation considered to be negative. The combination of legislative requirements for protecting biodiversity, the policy and guidance in the NPPF and the actions of other organisations (such as Natural England) as well the LPAs themselves creates a framework where the effects of revocation are considered to deliver similar positive benefits to biodiversity and nature conservation as retention.

The assessment has found that there are no policies in the East Midlands Regional Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

1.8.3 Effects of Retention

Assessment of the effects of retention of the Plan are predicated to the assumption that in the absence of the legislation and regional architecture enabling the updating of the Plan, the policies they contain will remain and become increasingly outdated and in some cases in conflict with the national policies in the NPPF. They will therefore play an increasingly smaller role in plan making and development control over time.

However, broadly it can be assumed that the effects of retention will broadly mirror the anticipated evolution of the baseline and are therefore unlikely to be significantly different from revocation. Nevertheless, removal of financial resources and the integrative approach of the East Midlands Regional Strategy could result in a lessening of the efficiency and effectiveness of delivery of measures promoting region-wide uplift in biodiversity protection and enhancement.

2. Population

2.1 Introduction

In the absence of detailed SEA guidance on the content of the population topic, 'population' includes information on demographics and generic socio-economic issues. The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals on the plan to revoke on population and socio-economics. Information is presented for both national and regional levels.

There are links between the population topic and a number of other SEA topics, in particular the effects of population on human health, material assets, air quality and climate change.

2.2 Summary of Plans and Programmes

2.2.1 International

The United Nation's **Aarhus Convention (2001)** grants the public rights and imposes on Parties and public authority's obligations regarding access to information, public participation and access to justice. It contains three broad themes or 'pillars':

- access to information;
- public participation; and
- access to justice.

The **SEA Directive** creates the following requirements for public consultation;

- Authorities which, because of their environmental responsibilities, are likely to be concerned by the effects of implementing the plan or programme, must be consulted on the scope and level of detail of the information to be included in the Environmental Report. These authorities are designated in the SEA Regulations as the Consultation Bodies (Consultation Authorities in Scotland).
- The public and the Consultation Bodies must be consulted on the draft plan or programme and the Environmental Report, and must be given an early and effective opportunity within appropriate time frames to express their opinions.
- Other EU Member States must be consulted if the plan or programme is likely to have significant effects on the environment in their territories.

- The Consultation Bodies must also be consulted on screening determinations on whether SEA is needed for plans or programmes under Article 3(5), i.e. those which may be excluded if they are not likely to have significant environmental effects.

The **European Employment Strategy** seeks to engender full employment, quality of work and increased productivity as well as the promotion of inclusion by addressing disparities in access to labour markets. These overarching aims are further espoused in the **Integrated Guideline for Growth and Jobs 2008-11** and later documents relating policy objectives into broad actions for the member states (**A Shared Commitment for Employment**, 2009; and, **Implementation of the Lisbon Strategy Structural Reforms in the context of the European Economic Recovery Plan**, 2009).

2.2.2 National

England

The **Government's Housing White Paper 'Laying the Foundations'** sets out the Government's policies to support the housing market, especially house building. The Government believes that a well functioning housing market is vital to competitiveness and attractiveness to business. Housing is also seen as crucial to social mobility, health and well being - with quality and choice having an impact on social mobility and wellbeing from an early age. The Government is putting in place new incentives for housing growth through the New Homes Bonus, Community Infrastructure Levy and proposals for local retention of business rates.

The **Local Growth White Paper (October 2010)** sets out the Government overarching goal is to promote strong, sustainable and balanced growth. It restates the Government's role in providing the framework for conditions for sustainable growth by:

- creating macroeconomic stability, so that interest rates stay low and businesses have the certainty they need to plan ahead;
- helping markets work more effectively, to encourage innovation and the efficient allocation of resources;
- ensuring that it is efficient and focused in its own activities, prioritising high-value spending and reducing tax and regulatory burdens; and
- ensuring that everyone in the UK has access to opportunities that enable them to fulfil their potential.

The White Paper focuses on the approach to local growth proposing measures to shift power away from central government to local communities, citizens and independent providers. It introduced Local Enterprise Partnerships (LEPs) to provide a vision and leadership for sustainable local economic growth. The number of LEPs has increased to 39 from the 24 originally announced. Across England the LEP's are at different stages of establishment and are subject to further development and consultation. LEPs

will be expected to fund their own day to day running costs but may wish to submit bids to the Regional Growth Fund (RGF). The RGF is a discretionary £1.4bn Fund operating for three years between 2011 and 2014 to stimulate enterprise by providing support for projects and programmes with significant potential for creating long term private sector led economic growth and employment and, in particular, help those areas and communities that are currently dependent on the public sector to make the transition to sustainable private sector-led growth and prosperity.

There are a number of policies set out with the **National Planning Policy Framework (NPPF) (2012)** that set out how local planning authorities should plan for the supply of housing. The new policies explain that to boost significantly the supply of housing, local planning authorities should:

- use their evidence base to ensure that their Local Plan meets the full, objectively assessed housing needs;
- identify and update annually a supply of specific deliverable sites sufficient to provide five years worth of housing;
- identify a supply of specific, developable sites or broad locations for growth, for years 6-10 and, where possible, for years 11-15;
- provide a housing trajectory and set out a housing implementation strategy for the full range of housing; and
- set out their own approach to housing density to reflect local circumstances.

The policy outlines measures that local planning authorities should take in order to deliver a wide choice of high quality homes, widen opportunities for home ownership and create sustainable, inclusive and mixed communities. The policy states that local planning authorities should identify and bring back into residential use empty housing and buildings in line with local housing and empty homes strategies.

The Government's **Planning Policy for Traveller Sites (2012)** should be read in conjunction with the National Planning Policy Framework. The policy replaces Circular 01/2006: Planning for Gypsy and Traveller Caravan Sites and Circular 04/2007: Planning for Travelling Showpeople. The overarching aim of the new policy is to ensure fair and equal treatment for travellers, in a way that facilitates the traditional and nomadic way of life of travellers while respecting the interests of the settled community.

2.2.3 East Midlands

Local Enterprise Partnerships in the East Midlands

The following LEPs cover the East Midlands:

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Table 2.1 East Midlands LEPs

LEP	Constituent Local Authorities	Key Actions
Derby, Derbyshire, Nottingham, Nottinghamshire	Derby (unitary), Derbyshire (all), Nottingham (unitary), Nottinghamshire (all)	<ul style="list-style-type: none"> • Build on the area's reputation for internationally competitive science, manufacturing, engineering and creative industries, driving better productivity and growth as we develop a low carbon economy. • Develop our distinctive cultural, sport and tourism offer to world class standards. • Share the benefits of our economic growth across our cities, towns and rural communities. • Meet employers' current and future skills demands through our highly rated and ambitious education partners. • Secure investment in regeneration and infrastructure projects that stimulate private sector growth.
Greater Lincolnshire	Lincolnshire (all), North Lincolnshire (unitary), North East Lincolnshire (unitary)	<p>Sustainable Rural Communities: Greater Lincolnshire is largely rural, with much of the population living in market towns, coastal communities and isolated rural settlements. Individuals and businesses looking to grow in these areas face particular challenges, and the LEP will work with partners and local businesses and entrepreneurs to provide support they need to thrive.</p> <p>Greater Lincolnshire Resource Strategy: Greater Lincolnshire has considerable assets in land, heritage and built environment. The LEP will look for ways to make the best use of these assets to drive their economy forward, for example, developing agri-food and tourism industries. It will also explore how they can make their County more resilient in the face of the challenges from climate change.</p> <p>Sub Regional Economic Driver: The western side of the County includes the city of Lincoln and the towns of Gainsborough and Grantham which have all been designated by Government as Growth Points. These areas of growth, along with other market towns such as Sleaford and their hinterland, provide an opportunity to grow the economy on the back of existing industries and the potential of the A1/A46 road network and East Coast railway line.</p>
Leicester and Leicestershire	Leicester (unitary), Leicestershire (all)	<ul style="list-style-type: none"> • Improve productivity, increase wealth creation and encourage sustainable private sector growth • Create a balanced, sustainable and competitive knowledge-based economy • Address the physical requirements for success • Improve skills levels and educational attainment • Provide effective business support • Increase inward investment • Promote sustainable communities and environmental sustainability
South East Midlands	Buckinghamshire (part): Aylesbury Vale, Oxfordshire (part): Cherwell, Northamptonshire (part): Corby, Daventry, Kettering, Northampton, South Northamptonshire, Bedford (unitary), Central Bedfordshire (unitary), Luton (unitary), Milton Keynes (unitary)	<ul style="list-style-type: none"> • Balance housing development and planning with employment growth • Promote access to next generation digital communications • Target enterprise support to grow diverse and successful businesses • Place locally-provided higher and further education at the heart of the future growth • Align area-wide strategic transport and infrastructure planning • Support the transition to a low carbon economy • Develop LEP-wide apprenticeship schemes, and an adult skills strategy to direct funding • Develop social enterprises and community organisations as important local employers

Figure 2.1 Local Enterprise Partnerships



2.3 Overview of the Baseline

2.3.1 UK

National Demographics

In mid 2010 the resident population of the UK was 62,262,000²¹ and 64.8% of the population was working age (aged 16 to 64) (65.8% males and 63.8% females). The working age population in 2010 was broken down as follows:²²

- 77.0% economically active;
- 70.5% in employment; and
- 8.2% unemployed.

The breakdown of qualifications of the working age population in 2010 was as follows:

- 31.2% had NVQ4 and above;
- 50.9% had NVQ3 and above;
- 67.2% had NVQ2 and above;
- 80.1% had NVQ1 and above;
- 8.4% had other qualifications; and
- 11.6% have no qualifications.

In England and Wales, between 2008/09 and 2009/10 estimates from the British Crime Survey (BCS) indicate vehicle-related thefts fell by 17%, burglary fell by 9% and violent crime fell by 1%. All BCS crime fell by 9%.

²¹ Office for National Statistics 2010 mid-year population estimates

²² NOMIS, Official Labour Market Statistics, Annual Population Survey, 2010, <https://www.nomisweb.co.uk>

Table 2.2 Number of Crimes Recorded by the Police in England and Wales:²³

	2008/09	2009/10	Change
	Number of offences (thousands)		%
Vandalism	2,700	2,408	-11
Burglary	725	659	-9
Vehicle-related theft	1,476	1,229	-17
Bicycle theft	527	480	-9
Other household theft	1,155	1,163	1
Household acquisitive crime	3,883	3,531	-9
All household crime	6,583	5,939	-10
Theft from the person	725	525	-28
Other theft of personal property	1,096	1,036	-5
All violence	2,114	2,087	-1
Personal acquisitive crime	2,094	1,895	-9
All personal crime	3,936	3,648	-7
All BCS Crime	10,518	9,587	-9

In 2010/11, the UK had a total of 32,750 schools which were broken down as follows:

- 3,130 nursery (138,300 students);
- 21,244 primary (4,922,000 students);
- 4,121 secondary (3,888,700 students);
- 1,293 special (102,800 students); and
- 427 pupil referral units (12,500 students)²⁴.

²³ Home Office, British Crime Survey in England and Wales 2009/10, <http://rds.homeoffice.gov.uk/rds/pdfs10/hosb1210.pdf>

Total of 9,064,300 pupils at maintained schools and a further 589,800 at non-maintained schools²⁴.

National Socio-Economic

In 2010 UK per capita Gross Value Added (GVA) was £20,476²⁵. The 2010 headline estimates show that both total GVA and GVA per head at current basic prices have increased in all UK regions. In 2010, London's gross value added (GVA) per head of population was 71.1% above the average for the United Kingdom (UK), while that of Wales was 26.0% below the average.

In 2009 the median full-time gross hourly pay in UK was £12.43 (males' median being £13.09 and the female median being £11.42). This compares to £11.98 in 2008²⁶. In the three months to July 2010 pay growth (including bonuses) rose by 1.2% in the private sector over the previous year compared with 2.7% for the public sector. Excluding bonus payments, growth in the private sector over the year was 1.3% compared with 2.8% for the public sector²⁷.

In the period February - April 2012 the UK had a total of 29,280,000²⁸ people in employment aged 16 and over, up 166,000 on the quarter. The number of people employed in the private sector increased by 205,000 to reach 23.38 million but the number of people employed in the public sector fell by 39,000 to reach 5.90 million.

In February 2012 - April 2012, the UK had an unemployment rate of 8.2% (all people of working age). This is a reduction of 0.2% on the previous quarter and compares to the previous year when the UK had an unemployment rate of 5%²⁹.

The recent UK recession has caused a downturn in many sectors and markets of the UK economy. UK gross domestic product (GDP) in volume terms decreased by 0.3% in the first quarter of 2012, revised from a previously estimated decline of 0.2%. Production industries fell by 0.4%, within which manufacturing output was flat whilst the output the service industries rose slightly by 0.1%³⁰.

²⁴ DCSF, Education and Training Statistics for the United Kingdom: 2011, <http://www.education.gov.uk/rsgateway/DB/VOL/v001045/v02-2011c1v2.xls>

²⁵ Regional, sub-regional and local gross value added 2010, <http://www.statistics.gov.uk/pdfdir/gva1210.pdf>

²⁶ NOMIS, Official Labour Market Statistics, Annual survey of hours and earnings - resident analysis https://www.nomisweb.co.uk/output/dn87000/{AFB7B1A5-142C-4D4F-BDE2-467C1389CB90}/nomis_2009_08_20_160703.xls

²⁷ ONS Labour Market Statistics, June 2012, <http://www.ons.gov.uk/ons/rel/lms/labour-market-statistics/june-2012/index.html>

²⁸ ONS Labour Market Statistics, June 2012, <http://www.ons.gov.uk/ons/rel/lms/labour-market-statistics/june-2012/index.html>

²⁹ NOMIS, Official Labour Market Statistics, National Indicators, June-August 2009,

<https://www.nomisweb.co.uk/articles/news/files/LFS%20headline%20indicators.xls>

³⁰ ONS, UK Snapshot, http://www.ons.gov.uk/ons/dcp171778_264972.pdf

2.3.2 England

Demographic

In mid-2010 England had a resident population of 52,234,000 and 64.8% of the population is of working age (aged 16 to 64) split by gender, 65.8% males and 63.8% females.

In 2010 the working age population breakdown was as follows:

- 77.2% were economically active;
- 70.5% of working age population were in employment; and
- 8.3% of working age population were unemployed³¹.

The working age population in 2010 had the following qualification breakdown:

- 31.1% have NVQ4 and above;
- 50.7% have NVQ3 and above;
- 67.0% have NVQ2 and above;
- 80.3% have NVQ1 and above;
- 8.6% have other qualifications; and
- 11.1% have no qualifications³².

In 2008/09, England had 24,737 schools:

- 438 nursery (37,200 students);
- 17,064 primary (4,074,900 students);
- 3,361 secondary (3,271,100 students);
- 1,058 special (85,500 students); and
- 458 pupil referral units (15,200 students)³³.

³¹ ONS Economic activity time series https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/subreports/nrhi_time_series/report.aspx?

³² ONS <https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/report.aspx>

Socio-Economic

In 2010 England's per capita Gross Value Added (GVA) was 20,974.³⁴

In 2011 the median full-time gross hourly pay in England was £12.85 (males' median being £13.44 and the female median being £12.00). This compares to £12.75 in 2010 and represents growth of 0.78% in nominal hourly total full time pay over the previous year³⁵.

In 2010, England had a total of 26,295,000 jobs³⁶.

In Feb 2008 - Jan 2010, England had an unemployment rate of 7.8% (all people of working age). This compares to the previous year when it had an unemployment rate of 6%³⁷.

2.3.3 East Midlands

Population

According to ONS figures, the East Midlands had a population of 4.5 million in mid-2009, an increase of 3.7 per cent since 2004. This compares with an overall increase of 3.3 per cent for the UK over the same period. People aged 65 and over in the East Midlands in 2009 made up 16.8 per cent of the population, compared with 18.3 per cent for the under-16s. This compares with averages for the UK of 16.4 per cent and 18.7 per cent respectively. In the East Midlands men aged 65 in 2007–09 could expect to live another 17.8 years and women 20.4 years. This is the same as the average for the UK. **Figure 2.2** illustrates the population density across the region, with notable contrasts between the densely populated cities towards the west of the region and the sparsely populated rural areas to the east.

³³ DCSF, Education and Training Statistics for the United Kingdom: 2009, <http://www.dcsf.gov.uk/rsgateway/DB/VOL/v000891/Chapter1.xls>

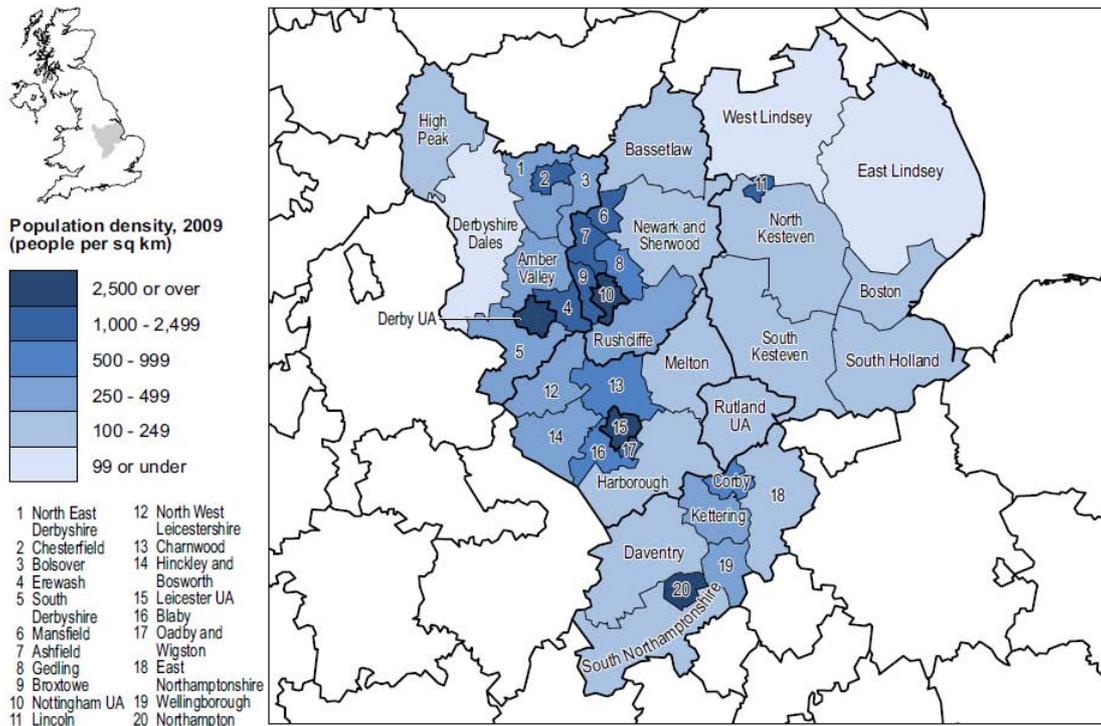
³⁴ Regional, sub-regional and local gross value added 2010, <http://www.ons.gov.uk/ons/rel/regional-accounts/regional-gross-value-added--income-approach-/december-2011/stb-regional-gva-dec-2011.html>

³⁵ ONS: Earning by workplace https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/subreports/gor_ashew_time_series/report.aspx

³⁶ ONS <https://www.nomisweb.co.uk/reports/lmp/gor/2013265930/report.aspx>

³⁷ ONS https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/subreports/nrhi_time_series/report.aspx

Figure 2.2 Population Density in the East Midlands³⁸



Housing

The East Midlands housing situation reflects the national polarising of north and south; with lower demand and the need for regeneration in the north due to declining traditional industries and high house prices and growth pressures in the south due to good transport links and proximity to London and the South East. The most pressing affordable housing gaps are in the Eastern and Southern sub-regions. The following housing market areas characterise the region:

Three Cities Sub-Region: The Three Cities SRS covers the following Housing Market Areas: Nottingham HMA: The integrated and overlapping housing markets of Nottingham and Derby are reflected in the strong clusters of travel to work and household migration movements centred upon these two cities. Their close proximity plus the high capacity transport infrastructure that links them and the effect of the M1 allowing equal access from north and south to both cities are key factors contributing to the complexity of household movements and travel to work patterns. The Nottingham housing market is centered on a well-defined urban core and a peripheral area. The dominant clusters of household and

³⁸ <http://www.ons.gov.uk/ons/rel/regional-trends/regional-trends/no--43--2011-edition/regional-profiles---summary---east-midlands.html>

travel to work movements between Nottingham / Broxtowe / Gedling / Rushcliffe / Erewash mark the spatial extent of the urban core of the housing market.

Derby HMA: The Derby housing market stretches from South Derbyshire to Amber Valley and extends across the regional boundary into East Staffordshire. There are heavy commuting flows from Amber Valley and South Derbyshire into Derby itself. South of Derby towns such as Swadlincote have restricted access to Derby and thus demonstrate greater connectivity with the Burton on Trent labour market.

Leicester HMA: The Leicester housing market exhibits a high degree of self containment with a heavy concentration of household and travel to work movements evident between Leicester / Hinckley and Bosworth / Blaby / Harborough / Charnwood / Oadby and Wigston. Travel to work patterns from the local authority areas surrounding Leicester and the relative absence of large scale commuting movements into alternative centres of employment reveal the strong reliance upon the Leicester labour market. The large number of household movements between Charnwood and Leicester suggests the Leicester housing market to be a more dominant influence over Charnwood than Nottingham. The relationship between Leicester and Coventry is weak in terms of the numbers of people moving home expressed as a % of resident population of the area of origin. However there is a clear cross regional connectivity between Hinckley and Bosworth / Nuneaton and Bedworth. Melton district displays the highest degree of individual self-containment of all the local authority areas in the sub region as reflected in its highly restricted household and travel to work movements. The spatial extent of its travel to work area is almost exclusively contained within its district boundaries although there are limited commuting flows into Leicester from Melton.

Northern Sub-Region: The Northern SRS covers the following Housing Market Areas:

Nottingham Outer HMA: The integrated and overlapping housing markets of Nottingham and Derby are reflected in the strong clusters of travel to work and household migration movements centred upon these two cities. Their close proximity plus the high capacity transport infrastructure that links them and the effect of the M1 allowing equal access from north and south to both cities are key factors contributing to the complexity of household movements and travel to work patterns. There is a demonstrable peripheral area of relatively small but inter-linked household and travel to work movements which take place between Newark and Sherwood / Mansfield and Ashfield districts and which link orbitally with the urban nucleus of Nottingham.

Northern (Sheffield/Rotherham): Districts in the northern fringe of the region such as North East Derbyshire / Chesterfield / Bolsover and to a lesser extent Bassetlaw exhibit a high degree of connectivity with Sheffield and Rotherham. Due to their location and the pattern of road and rail connections a large proportion of the residents of these districts work in Sheffield and Rotherham as reflected in the pattern of travel to work movements. These districts also experience commonality in the issues faced in their respective housing markets. Areas of low housing demand, pockets of economic deprivation and the legacy of the downturn in the coal mining industries are key housing related problems experienced in these areas.

Dwelling Completions and Affordability

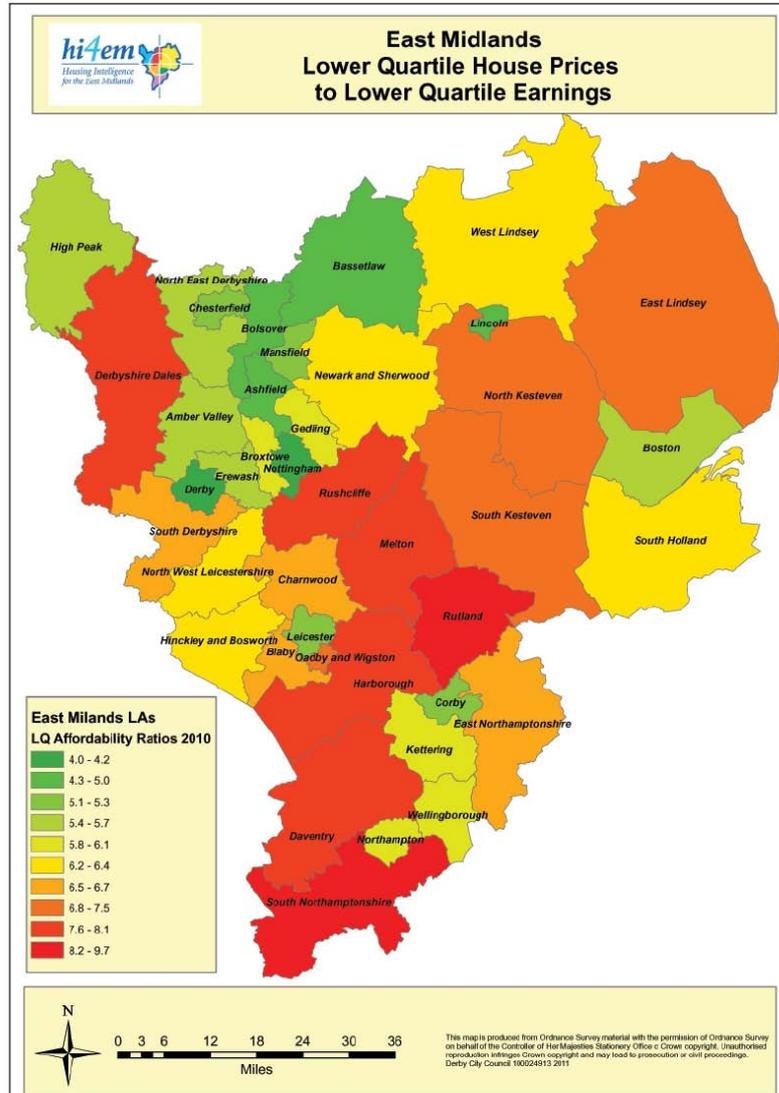
According to the most recent figures from the East Midlands Councils³⁹, in 2009/10 there was a net gain of 12,274 dwellings in the East Midlands, which continues a substantial drop from 2006/07 and 2007/08 figures. The low figure for the last two years means that the average annual provision remains below the average annual target figure laid out in the Regional Plan of 21,517 dwellings per annum to 2026 to an actual four year average completion rate from 2006/07 to 2009/10 of 17,405. Some 69,619 dwellings were completed between 2006/07 and 2009/10. During 2009/10 a total of 2,918 affordable dwellings were completed in the East Midlands. A further 159 affordable dwellings were acquired through transfers and acquisitions, giving a total increase of 3,077 dwellings. This is just below the 2008/09 total new build affordable dwellings and those acquired through transfers and acquisitions at 3,253. For housing completions by size for 2009/10, the largest proportion of flats (67.3 per cent) were 2 bedroom and the largest proportion of housing (43.7 per cent) was 3 bedroom. These proportions were virtually unchanged from the previous year's figures for 2 bedroom flats and 3 bedroom houses (67 per cent and 41 per cent respectively).

In common with other regions, rising house prices have increased the average price-income ratios in the region and have resulted in severe affordability issues, with first time buyers struggling to buy property at the bottom end of the market. In 2009, the average house price in the East Midlands was £172,415, a -7.7 per cent average annual percentage change from 2008. The decrease on this measure is identical to the national average percentage change. Up until 2008, house prices in the East Midlands increased broadly in line with the national trend, although remain consistently lower than the English mean (by around 28 per cent each year). However, house prices in the East Midlands have remained consistently higher than the means for Yorkshire and the Humber, the North East and North West⁴.

Figure 2.3 illustrates the range of ratios of affordability across the region, ranging from the severest problems in the south, central and north eastern parts, (with average house prices up to eight times lower quartile earnings) with less intense disparities in the south eastern and north west (with ratios of around five). Affordability problems throughout the region may result in increases in homelessness figures in the future. The number of households accepted by local authorities in the region as homeless has fallen steadily from 9,590 (or 1.7 per 1,000 households) in 2003/04 to 3,060 in 2009/10. Similar declines have been seen in most other regions. The East Midlands had 7.6 per cent of homeless households in England in 2009/10.

³⁹ East Midlands Councils (2011) The East Midlands in 2009/10

Figure 2.3 House Price/Earning Ratios 2010⁴⁰



The East Midlands Annual Monitoring Report⁵ notes that a total of 72 new permanent pitches for gypsies and travellers and 14 new transit pitches were provided in 2009/10 (seven local authorities were unable to provide data) bringing the total number of pitches in the region up to 932 (745 permanent and 187 transit). This compares with 34 new permanent pitches provided in 2008/09 (no new transit pitches were provided). Some 248 gypsy and traveller caravans were recorded on unauthorised sites in 2009/10 (9 local authorities did not provide figures). This can be broadly compared with 403 'unauthorised encampments' recorded in 2008/09.

⁴⁰ East Midlands Councils (2011) The East Midlands in 2009/10

Economy

In line with other regions, the East Midlands has suffered in the recession since 2008. According to ONS data, the unemployment rate in the East Midlands stood at 8.0 per cent in the fourth quarter of 2010, compared with the UK rate of 7.9 per cent. A lower proportion of children in the East Midlands (15.5 per cent) lived in workless households in the second quarter of 2010, than the England average of 15.9 per cent. In April 2010, the median gross weekly earnings for full-time employees on adult rates who were resident in the East Midlands was £470, lower than the UK median of £499. Labour productivity (gross value added per hour worked) in the East Midlands in 2009 was 7.2 per cent below the UK average. More widely, the Annual Monitoring Report for the East Midlands⁴¹ notes that in terms of regional economic performance in 2009 to 2010, the vast majority of the key indicators (GVA, numbers employed, business start-ups, business confidence, development of employment, retail and leisure land) are all moving in the wrong direction or away from target in this time of economic uncertainty. Productivity in the East Midlands is below the UK average and close to the EU average. Whether measured by output per filled job or output per hour worked, productivity in the region is around 7.5 percentage points below the national average.

There are around 1.8m employees in the East Midlands. The highest proportion of employees in the region is employed in the Distribution, Hotels and Restaurants sector (around 25%), and Public Administration, Education and Health (around 25%). These sectors are both expected to see an increase in employment over the next ten years. The region currently has a higher than average proportion of the workforce employed in the manufacturing sector (around 20% compared 12% nationally). Manufacturing employment has been particularly significant in Nottinghamshire, Derbyshire and Leicestershire. The structural changes over the next decade will be characterised by a shift away from primary production and manufacturing, towards the service sector. Regional employment in the primary and manufacturing sectors is therefore expected to decline further. Albeit small scale now, the primary sector, particularly the coal, quarrying and agriculture industries, has historically been important in the East Midlands. The overall regional share of employment in the Banking, Finance and Insurance sectors is currently small (around 15% compared to a national average of around 20%); it is the lowest nationally second only to the North East region. This under-representation is particularly marked in the metropolitan Unitary Authorities (excepting Nottingham), and in the rural counties of Lincolnshire and Rutland where employment in the banking, finance and insurance sectors accounts for less than 10% cent of total employment.

According to the East Midlands AMR, the East Midlands is home to around 148,000 businesses, 6.9 per cent of all businesses in the UK. The manufacturing sector accounts for a relatively large proportion of the East Midlands' economy, at 20.5 per cent of regional GVA compared to the UK average of 13.7 per cent. In the past two decades the service sector has been both the largest and fastest growing sector in the UK and East Midlands. In 2009, Resident based Gross Value Added (GVA) per head in the East Midlands was 86.8 per cent of the UK average. GVA per head in the region

⁴¹ East Midlands Authorities (2011) The East Midlands in 2009/10

had previously fallen marginally from 89.7 per cent of the UK average in 2002 to 88.0 per cent in 2008. In 2009, the East Midlands' share of UK total GVA was 6.3 per cent. Tourism generates approximately £6.05 billion per annum for the East Midlands economy, including both direct and indirect revenue. Around one-third of this revenue (40 per cent) comes from overnight visitors. More than half (71 per cent) of the revenue from overnight tourists is from those staying in serviced and non-serviced accommodation. Day visitors represent the largest segment of tourists in terms of the £3.65 billion revenue that they generate. Approximately 78,593 jobs (full time equivalents) were supported by direct tourist expenditure in the East Midlands and a further 20,104 jobs were supported by indirect revenue from tourism, making a total of 98,697.

The region has some strong knowledge intensive sectors that have high productivity levels, such as transport equipment, and of all employment in the manufacturing sector, 9% can be described as high technology. The region is however under-represented in knowledge-intensive businesses among smaller and medium-sized firms. A large proportion of employment in the knowledge economy is provided by public sector activity. The region has important innovation assets, particularly the 5/5* rated departments in universities and large research-intensive firms, such as Astra Zeneca Research infrastructure in the region is planned to increase due to developments in Higher Education Institutions (HEIs), science parks and strengthening of the regional clusters. For example:

- East Midlands Innovation Network at DeMontfort University's Innovation Centre.
- R&D activities have been aligned to regional clusters.
- BioCity Nottingham Ltd operates the UK's largest bioscience/healthcare innovation centre.
- Loughborough University and BAE SYSTEMS are developing the Systems Engineering Innovation Centre lifting regional performance in engineering innovation.

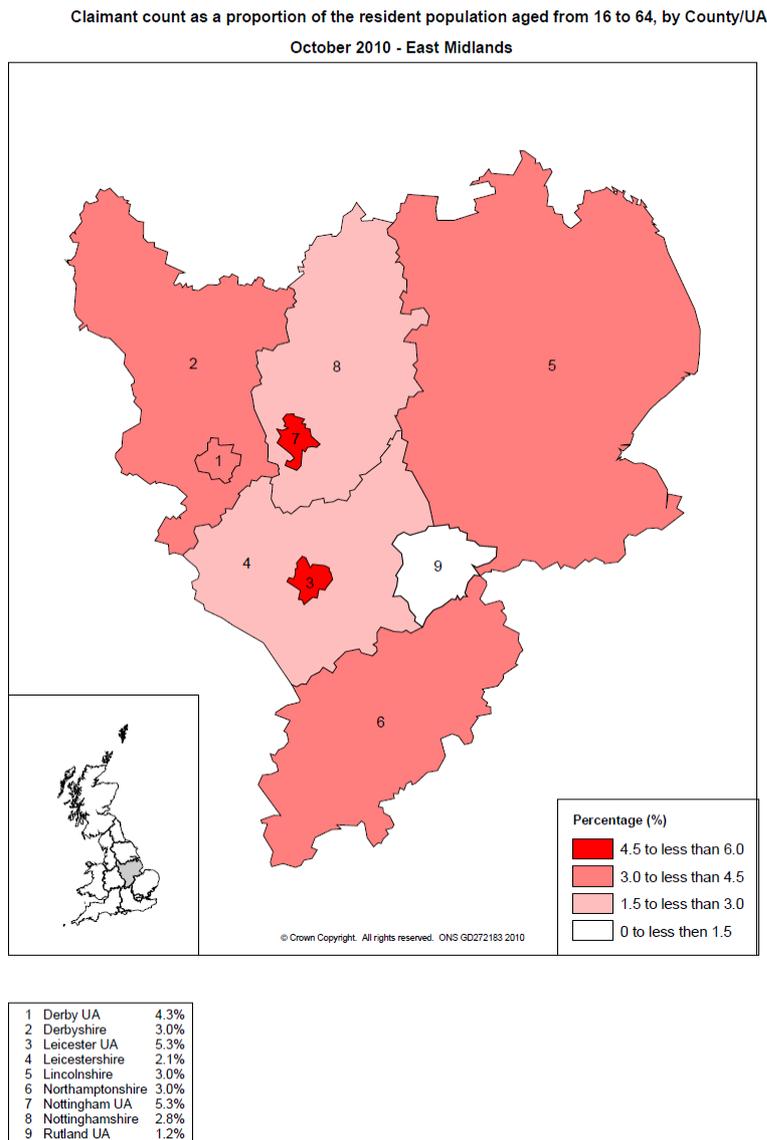
However, employment in knowledge intensive services has increased at a steady rate with strong growth in urban areas, a trend likely to increase with the focus on clusters. Several emerging clusters are providing additional potential for innovation:

- The growing cluster of creative/cultural industries is largely 'city-based', but employment locations have also been expanding to rural areas.
- The food processing / technology sector, with diverse production and research activities, has firms mostly located along the M1 corridor; increases in employment within this sector have benefited Leicestershire in particular.
- High performance engineering represents a significant research driven sector.
- In terms of the sub-regional share of employment in knowledge intensive sectors, Leicestershire, Greater Nottingham and Northamptonshire had the greatest percentage share, whilst the Welland and Lincolnshire SSP areas had the lowest.

The November 2010 quarterly Statistical Bulletin on Labour Market Statistics for the East Midlands reports the seasonally adjusted claimant count (Jobseeker's allowance claimants aged 18+) in October 2010 as 4.4 per cent, down 0.1 percentage points from September 2010, and down 0.8 per cent

points since October 2009. The seasonally adjusted number of claimants in October 2010 was 97,000, down 1,200 on September 2010, and down 18,100 since October 2009. The claimant count as a proportion of the resident population aged 16 to 64 was lowest in Rutland at 1.2 per cent. It was highest in Leicester and Nottingham Cities both at 5.3 per cent (**Figure 2.4**).

Figure 2.4 East Midlands Claimant Count October 2010⁴²



Around a quarter of adults living in the region have poor literacy and numeracy skills. Basic skills deficiencies are greatest in Leicester, Nottingham and Corby. The region’s workforce does have an over-representation of lower qualified people – around 19% of workers have no qualifications compared to

⁴² East Midlands Councils (2011) the East Midlands in 2009/10

around 16% of workers nationally (although it is worth noting that the East Midlands region out-performs four other regions on this indicator).

Social Capital and Access to Services

As is the case nationally, pressure is growing on transport infrastructure as travel demand increases. The major north-south roads, such as the M1 and A1, are increasingly congested and poor east-west links, such as to and within Lincolnshire, remain a significant issue. The region has a number of key international linkages, most notably East Midlands Airport, the Eastern ports such as Boston (as well as links to the ports of Felixstowe, Immingham and Grimsby in adjacent regions) and the A14 and West Coast Mainline Trans-European Transport Network (TEN) routes. Congestion within the region's urban areas is also a problem. The region is strongly influenced by the proximity of major urban conurbations in adjacent regions and inter-regional transport links including the M1/M6 and A50 corridors and the East Coast and Midland Mainlines. The region has the lowest level of rail use in the country because of the lack of a sizeable urban rail networks and a number of infrastructure 'pinch points'. The East Midlands is one of the more rural regions of England and inadequate public transport in rural areas leads to a heavy reliance on the car and limits choice for those without access to a private vehicle, mainly the elderly, younger, disabled and poorer members of rural society. Women and young people can also be disadvantaged in terms of educational, employment and social opportunities. Road traffic levels are rising fastest in rural areas and road casualty rates are higher. Some 85% of people in rural areas of the East Midlands own a car compared to 69% of people in urban areas. The poorest 10% of households are twice as likely to own a car if they live in a rural area. According to the East Midlands Annual Monitoring Report (2011):

- The East Midlands has experienced higher than average road traffic growth over the last decade (at 0.8 percentage points ahead of the England average). Between 1999 and 2009 the level of road traffic on major roads (motorways and A-roads) increased by 7.3 per cent in the East Midlands. However, the region still experienced the fourth lowest growth of the nine regions (ahead of London, East of England, and the South East).
- Average vehicle speeds have remained little changed in most regions and in England as a whole since 2006/07. The East Midlands saw a 0.1 per cent reduction in average vehicle speeds in the previous 12 months, compared to a 0.2 per cent reduction in England.
- The use of the bicycle to get to work has remained at 3 per cent of journeys in the East Midlands and England since 2006.
- 77 per cent of East Midlands' residents travel to work by car, whilst 7 per cent use public transport and 11 per cent walk. These figures are largely unchanged since 2006. The East Midlands, along with the North West (77 per cent), West Midlands (79 per cent) and South West (77 per cent), has the highest dependency on the car as a method to travel to work of any region. The East Midlands, along with the South West, has the lowest use of public transport as a means of getting to work (7 per cent and 5 per cent respectively).

The East Midlands is a diverse economic and social mix ranging from prosperous city dwellers and commuters to pockets of serious urban and rural deprivation. Deprivation in the East Midlands is highly concentrated in the cities and coalfield areas as well as some parts of the Lincolnshire coast. Deprivation is also found in rural areas, where opportunities for employment and access to key, basic services are limited. Rural East Midlands has a higher proportion of rural parishes without a post office, pubs and banks/building societies than is the case nationally. It does however have slightly fewer parishes without village shops or GPs. However, rural households have above average (for England) access to supermarkets, job centres and libraries. However, they have worse than average access to banks and secondary schools. Access to cash points, post offices, petrol stations, primary schools and GP surgeries are very close to England's average. The more remote rural areas of the eastern half of the region may be benefiting from relative isolation and poor transport infrastructure maintaining the economic viability of existing services. **Table 2.4** summarises the accessibility to key services of urban and rural areas by region, illustrating the relatively good performance of the East Midlands.

Table 2.4 Accessibility in Rural and Urban Areas (May 2010) – residential delivery points within a specified distance of service (%)⁴³

Region	Banks & Building Societies (4km)		GP surgeries (4km)		Post Offices (2km)		Primary Schools (2km)		Secondary Schools (4km)	
	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
East Midlands	14.1	69.7	23.4	71.0	22.3	68.8	25.0	70.6	14.8	69.8
East of England	13.5	67.8	23.4	69.3	22.8	66.2	24.8	68.9	13.8	68.2
London	0.0	99.8	0.1	99.9	0.1	99.4	0.1	99.8	0.0	99.8
North East	12.5	78.9	17.3	80.6	16.6	77.9	16.9	80.2	12.1	79.4
North West	7.2	87.6	9.3	88.4	9.0	86.7	10.0	88.2	6.8	87.9
South East	10.9	77.2	17.5	78.5	15.7	75.3	17.1	77.3	8.6	75.4
South West	16.9	65.2	25.4	66.2	25.5	63.5	28.8	65.4	14.5	65.1
West Midlands	6.3	83.1	10.8	84.6	10.7	82.9	11.7	84.2	7.1	83.9
Yorkshire & the Humber	10.7	79.3	16.3	80.4	15.9	79.0	17.1	80.1	10.5	79.1

The decline in rural services and increasing reliance on the private car experienced by rural residents in the East Midlands is in line with national trends. The region has an older than average age profile, and the average age continues to increase. Rural areas in the south and west of the region are generally far more accessible than those in the east of the region. A significant proportion of new development is likely to occur in rural areas to the south of the region (e.g. the Milton Keynes South Midlands Growth Area) increasing access to services for existing populations. Tourism in the East Midlands contributes £5billion

⁴³ Rural Services Data Series: Availability of Services by Region, 2010

to the region's economy. 90% of trips are day trips, 9% are staying trips from other parts of the region and 1% are from overseas. The region hosts 800,000 foreign visitors annually. The Peak District, especially, experiences high visitor numbers placing heavy pressure on infrastructure and the natural environment. There is a higher ratio of businesses to population in rural than in urban areas of the East Midlands, with over 85% of rural business having 10 or fewer employees. There is a noticeable difference between accessible and remote rural areas, with accessible rural areas near the urban-fringe, generally, out-performing the regional average in terms of the economy in recent decades.

2.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

2.4.1 National

Output in the UK economy has been largely flat for a year and half and was estimated to have contracted slightly in the past two quarters. There are weaknesses within domestic demand. Consumption fell, as the squeeze on real incomes continued and households saved more. And business investment remained significantly below its pre-crisis level, held back by weak demand, heightened uncertainty and tight credit conditions. Growth in the rest of the economy was also estimated to be weak, with manufacturing and services output both broadly flat. But business surveys, labour market developments and Bank of England reports all point to somewhat stronger activity in the first quarter, suggesting that the underlying picture is less weak.

Unemployment rates have been on a rising trend although in May 2012, this trend was abated slightly. Disadvantage continues to exist in communities, both in remote areas and inner cities.

2.4.2 East Midlands

The overall scale of development, across large parts of the Region, will be significant, and will noticeably affect the character of many locations, depending upon the extent to which development will take place within existing built-up areas, or on greenfield sites, and also on the amount of infrastructure built, employment land developed, community facilities provided, traffic generated, and environmental improvements achieved.

Nearly three-quarters of all new dwellings are to be provided within the Three Cities and Southern Sub-Areas, with around 40% to be provided within the Three Cities Sub-Area and around 25% to be provided in the Southern Sub-Area. Other areas are also likely to see a significant scale of increase in dwelling provision include a number of districts in the vicinity of the cities of Nottingham, Leicester and Derby.

The cumulative effects of development should also be taken into account. For example, the impacts on the non-designated environment should also be considered, especially where this would adversely affect landscape character, or would lead to erosion in the overall biodiversity resource. As part of the SA, it

was recommended by members of the SA Steering Group that any environmental capacity issues should be highlighted that may be issues under the proposed draft Regional Plan. From the work undertaken on the SA, the following capacity issues are the most pertinent to have been identified:

- Availability of water resources, especially in the East Midlands (Derbyshire, Leicestershire, and Nottinghamshire) and Lincolnshire Fens water resource zones.
- The capacity of sewage treatment works to accommodate further development without adverse effects on water quality, especially in the Northern and Three Cities Sub-Areas.
- The achievement of air quality and greenhouse emissions targets, especially with respect to transport.
- The potential permanent loss of best and most versatile land to development, for example around Boston.
- Flood risk in the Southern and Three Cities Sub-Areas, and possibly parts of the coast.
- The capacity of historic settlements to accommodate further development, especially Lincoln, but also smaller settlements such as Stamford.
- Despite the relatively small amount of development to be accommodated in the Peak Sub-Area, there could be some capacity issues with respect to landscape and biodiversity.
- It is uncertain at this stage whether there are capacity issues with respect to biodiversity more generally, although it should be borne in mind that the biodiversity interest of the Region is already comparatively low.

With respect to these and other environmental capacity issues, it is important to bear in mind that whether or not development will breach the capacity of the Region to accommodate depends as much on the way that development is delivered as how much. For example, if the environmental policies in the draft Regional Plan are strictly applied, then damage to the environment should be avoided in the first instance. If damage cannot be avoided then it should be considered whether there are other ways or locations of delivering the Regional Plan objectives that will avoid such damage. If no such alternatives exist, then it will be important to ensure that any adverse effects are minimised through mitigation, and then compensation. Finally, it will also be important to consider how development proposals can be utilised to deliver improvements to the environment where it could be considered that capacity limits have been breached in the past (i.e. make good past damage).

2.5 Likely Evolution of the Baseline

2.5.1 National

Demographic

The current UK population is generally increasing, and projected to reach 73.2 million by 2035⁴⁴.

The age structure of the UK population is moving towards an ageing population: those of pensionable age are projected to increase by 28% from 2010 to 2035 (note that the pensionable age is to change over this period). Those aged between 15-64 years are projected to decrease from 62.1% to 60.5% of the population, whilst those under 16 are projected to decrease from 18.7% to 17.9% of the population by 2033⁴⁴.

There are no formal targets for population growth in the UK (other than the recent intention to introduce non-EU immigration caps).

Socio-Economic

There are current uncertainties over market conditions and the range of economic forecasts available indicate a number of future scenarios. The Bank of England recently concluded that “*underlying growth is likely to remain subdued in the near term before a gentle increase in households’ real incomes and consumption helps the recovery to gain traction. ... The possibility that the substantial challenges within the Euro area will lead to significant economic and financial disruption continues to pose the greatest threat to the UK recovery*”⁴⁵.

2.5.2 England

Demographic

Between 2008 and 2033, the population of England is projected to increase from 51.46 million to 60.715 million, an increase of 17.9%. The number of children aged under 16 is projected to increase by 12.8% from 9.669 million in 2008 to 10.916 million by 2033; the number of people of working age is projected to

⁴⁴ ONS, National Population Projections 2008-based, <http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2010-based-projections/sum-2010-based-national-population-projections.html>

⁴⁵ Bank of England, Overview of the Inflation Report May 2012 <http://www.bankofengland.co.uk/publications/Pages/inflationreport/infrep.aspx>

increase by 7.7% from 33.503 million in 2008 to 36.101 million; the number of people of pensionable age is projected to rise by 65.2% from 8.289 million in 2008 to 13.697 million.⁴⁶

Socio-Economic

No GDP values for England were available but trends will closely match that of the UK as a whole.

2.5.3 East Midlands

Housing

- Affordable Housing: affordable housing gaps in the southern and eastern sub-areas need to be met.
- High house prices: high house prices prevent first time buyers starting on the property ladder and are also forcing people to commute longer distances, which in turn leads to transport congestion as well as environmental costs.
- Housing provision: there are currently housing provision issues in the northern and peak sub-areas due to poor quality housing and transport problems.
- Delivering decent homes: there are vulnerable groups on low incomes living in poor conditions across the region in both urban and rural locations.
- Attracting business: improving quality of private sector housing should help to attract businesses.
- Distribution of housing: a significant amount of housing is currently allocated to the southern sub-areas as part of the Growth Area provision.
- Pockets of deprivation: Parts of the region's urban and semi-urban areas display evidence of higher levels of deprivation – the key areas being Nottingham and Leicester. Deprivation also exists in the region's rural areas, but here the problem is 'averaged out' as pockets of deprivation usually sit in the same ward-geography with more prosperous households.
- The widening deprivation gap: Although the standard of living has been rising in the East Midlands as a whole, the most deprived areas are suffering more and more, there is a widening gap between the least and the most deprived areas.
- Focusing on problem areas: Deprivation is most pronounced in areas such as the coalfields, where the job-gap issue is still relevant. Other areas such as the Peak District and Lincolnshire,

⁴⁶ General Register Office for Scotland population projections, http://www.scotpho.org.uk/home/Populationdynamics/Population/DataPagesofPopulation/Population_scotprojections.asp

which are dependent on industries that are undergoing restructuring processes (engineering, textiles, clothing etc), are likely to have a persistent skills gaps

Economy

- Intra-regional disparities: There are marked variations within the region with lower employment rates in the north of the region, especially in the coalfield areas, and higher rates in the south. Levels of employment are also low in Lincolnshire, with hidden unemployment a problem. There are concentrations of unemployment in the major cities.
- Just under 40% of the population lives in towns and villages of less than 10,000, making the East Midlands one of the more rural regions in England. A higher proportion of elementary employment exists in rural areas, such as Lincolnshire, while having the lowest proportion of knowledge workers in employment. The region's rural districts also have a significantly older age profile than urban districts. 43.6% of the rural population are aged 45 or over, whereas in urban districts the figure is 38.6%.
- High employment: The region overall has high employment rates and low unemployment rates.
- Skills disparities: Skill levels are relatively low in both urban and rural parts of the East Midlands, although an urban-rural split exists within the region, attainment levels higher in rural districts. This is the case for all subjects at Key Stage 2 level and for the attainment rate at NVQ level 3 or 4 slightly (although still lower than the national average). While higher than the national average, the percentage of people aged 16-74 in rural districts with no qualifications is lower than urban areas in the region. Educational achievement is particularly poor in Leicester and Nottingham.
- Low skills: Increasing skill levels is essential to the attraction of investment and viability of business in the region. Tackling basic skills and higher skills levels is important to enabling businesses in the region to remain competitive and to decrease the vulnerability of the workforce to increases in unemployment, or structural changes.
- Knowledge economy: Progress towards targets for economically active adults with NVQ Levels 3 / 4, will encourage growth of more knowledge intensive sectors and meet gaps that exist in higher level employment. It will also contribute towards raising wage levels in the economy.
- Higher value activities: The region needs to develop managerial and entrepreneurial talent across all business sectors to support innovation and its translation into higher value added activities. Future manufacturing decline will need to be compensated by higher value service sector activities.
- Low skills/low pay: There is a large amount of employment in lower-skilled, lower-paid sectors in the region.

- Rural businesses: Issues of poor access to broadband clearly hampers ICT usage and could still significantly hamper competitiveness of rural businesses in the region. Rural areas such as Lincolnshire perform worst for employment in knowledge intensive sectors.
- New and small firms: The counties in the middle of the region (Rutland and Leicestershire) had the highest dependency on small firms in 2003, while the three cities had the lowest dependency on smaller employers.
- Rural businesses: There are a higher number of VAT registrations (& deregistrations) in rural areas within region than is the case with rural areas in other regions. While the region has a relatively buoyant rural economy in comparison to other regional rural areas, the rural economy comprises a higher incidence of small businesses and self-employment than in more urban areas.
- Foreign investment: The region has a relatively small share of foreign owned firms; international trade accounts for 22% of GDP, compared to 26% nationally
- Business survival: Levels of business survival are below national average, but there has been an above average increase in business stock. There are significant variations between the SSP areas in the change in VAT registered business stock (1994-03), from 18.4% in Northamptonshire SSP, to just 1.42% in Lincolnshire SSP.
- Structural change: Western economies have been subject to long-term structural change for 30 years, which has seen the decline in manufacturing industry and growth in service sector activities. In regions outside the South East and London, this structural change threatens to reduce growth in productivity, and result in lower average incomes. As a response, EU and national policies have recognised the importance of increasing value added from economic activity, through increasing knowledge intensity. This places entrepreneurship, innovation and skills development as central policy concerns.
- High productivity sectors: The region has a particular concentration of some high productivity sectors, especially transport equipment, largely due to the automotives sector. The regionally significant food and drink sector also has high productivity levels.
- Manufacturing/service sector balance: High proportion of the workforce in manufacturing, and a below average proportion in some services i.e. banking, finance and insurance, relative to the national average. Some areas such as Northamptonshire and the three cities sub-region had a relatively high proportion of employment in manufacturing, but are also well represented in service sectors, such that they now have a lower proportion of employment in manufacturing than services. Employment in the primary industries is projected to decline.

- Knowledge-based sector: The region has a lower than average proportion of business in the knowledge-driven sectors. Sectoral priorities at regional level are reflected in the defined clusters which will increase businesses in such sectors: High performance engineering; Clothing and textiles (design-led fast turn manufacturing and technical textiles); Food and Drink (food technology); Healthcare focusing on bioscience; Creative industries (particularly new media).
- Intra-regional disparities: The region is performing relatively well on GVA per head of population, the trend increasing at a faster rate than nationally. Intraregional disparities exist between the urban centres and rural fringes, ranging from GVA per head of £15,600 in Northamptonshire SSP to £9,500 in Lincolnshire and £9,800 in North Derbyshire-North Nottinghamshire. This is in part explained by the proximity of Northamptonshire to the South East economy.
- The knowledge sector: It will be important for the region to proactively develop knowledge-intensive sectors, especially in services but also in higher value manufacturing. This will be particularly important if the region is to achieve its sustainable economic performance target of increasing the growth of GDP per capita from its present trend of 2.15% to an average of 2.4%.

Social Capital and Access to Services

- Participation in sport: The Government Strategy for Sport sets a target of 70% adult participation in sport by 2020. As the region is currently at 30%, there is a marked shortfall (particularly in female participation) between the current level and the achievement of this target.
- Protecting and improving local facilities: Even though several flagship schemes and high budget leisure facilities have been set up in the East Midlands to raise the profile of sport – e.g. the National Ice Centre, there is an issue with the protection of open land in the region, in particular playing fields.
- Reporting crime: It is estimated that over 70% of the crime in the East Midlands goes unrecorded. If this data were included, the crime statistics would be much worse.
- The fear of crime: Nearly a third of female pensioners are extremely nervous about the possibility of being a victim of crime – and the statistics are not solely confined to older people
- Problem areas: There is a pronounced uneven distribution of crimes committed across the East Midlands region. Nottinghamshire emerges from the data as a key crime area as it has a third more crime than Leicestershire and Derbyshire (when the populations of the county are taken into account).

Transport

- Volume of traffic (including congestion hotspots): The region continues to see significant increases in motor vehicle traffic including heavy goods vehicles. Congestion is a problem on the major north-south routes.

- Rural transport provision: The region is predominantly rural, especially in the east, with many settlements lacking in services and adequate public transport infrastructure. Poor east-west links further isolate communities in the more rural east of the region.
- Airport provision: East Midlands Airport is of significant economic importance but also poses environmental concerns.
- ICT and Broadband Access: Growth in internet access increases access to services, especially for rural residents. This may result in increases in road traffic due to the delivery of goods ordered online.
- Rural characteristics: The East of the region is generally of a more rural nature with a dispersed settlement pattern whilst the west and south contain the majority of larger settlements. Issues of accessibility to rural areas are more pronounced across most parts of the east.
- Growing population: The population in rural areas is growing fast with implications for land-use planning, service provision and the character of rural areas.
- Ageing population: The region has an ageing population who are particularly vulnerable to poor service provision and especially poor public transport provision in rural areas.
- Transport: There is a heavy reliance on the private motor vehicle in rural areas across the whole region and public transport provision is poor.

2.6 **Assessment of Significant Effects of Retention, Revocation and Partial Revocation**

Despite there being many minor positive and some minor negative effects associated with the East Midlands Regional Plan policies, both for retention and revocation, there were judged to be no significant effects. This reflects the difficulty of assessing the impact of policies which interact with one another, particularly over the longer term and the way in which different combinations of policies could affect different groups. For example, the provision of services has widely differing impacts according to social group and type of current provision. Additional provision therefore whilst being helpful in principle, cannot be scored as a significant positive effect.

2.7 **Mitigation Measures**

There are no mitigating measures are proposed for this topic.

3. Human Health

3.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the regional strategies on human health. Information is presented for both national and regional levels.

There are links between the human health and wellbeing topic and other topics in the SEA, specifically air, climate change and material assets (waste management).

3.2 Summary of Plans and Programmes

3.2.1 International

The World Health Organization (WHO)⁴⁷ states that “*health promotion goes beyond health care. It puts health on the agenda of policy makers in all sectors and at all levels*”; consequently, healthy public policy has been a main goal of health development in many countries. The **Canadian Lalonde Report (1974)** identified four health fields independently responsible for individual health: environment, human biology, lifestyle and health care organisation.

The WHO **Children’s Environment and Health Action Plan for Europe (CEHAPE) (2004)** was launched in June 2004 and signed by all 53 Member States of the WHO European Region, including the UK. The aim of the CEHAPE is to protect the health of children and young people from environmental hazards.

The European Union has a Programme for Community action in the field of Health (2008-2013) and, on the 23/4R^d October 2007 the Commission adopted a new overarching Health Strategy **‘Together for Health - A Strategic Approach for the EU 2008-2013’**. Community Action focuses on tackling health determinants which are categorized as: personal behaviour and lifestyles; influences within communities which can sustain or damage health; living and working conditions and access to health services; and general socio-economic, cultural and environmental conditions.

The **SEA Directive** adopted in 2001 specifically requires the consideration of “*the likely significant effects on the environment, including on issues such as ..., human health, ...*” (European Parliament and the Council of the European Union, 2001). The SEA Protocol (United Nations Economic Commission for Europe, 2003) implements the political commitments made at the Third European Conference on

⁴⁷ See the Ottawa Charter adopted at the First International Conference on Health Promotion in 1986.

Environment and Health and uses the term 'environment and health' throughout. It indicates that health authorities should be consulted at the different stages of the process and so goes further than the SEA Directive. Once ratified, it will require changes to the SEA Directive to require that health authorities are statutory consultees.

The WHO publication ***Health Impact Assessment in Strategic Environmental Assessment (2001)*** provides a review of Health Impact Assessment concepts, methods and practice to support the development of a protocol on Strategic Environmental Assessment to the Espoo Convention, which adequately covers health impacts.

3.2.2 National

UK

Many of the national level policies and strategies regarding health are aimed at understanding the trends and nature of health issues within the country, understanding the links between health issues and other related factors (such as economic status, etc.), and, primarily, at reducing the inequalities in health outlooks that are evident between different parts of the country and different sections of the population. Whilst some applicable policies/strategies are contained within adopted strategies, many of the Government's objectives and intended actions are contained within White Papers and guidance papers.

The Health Protection Agency's ***Children's Environment and Health Action Plan, a summary of current activities which address children's environment and health issues in the UK (2007)*** applies the objectives of CEHAPE (2004) to the UK context and ***A Children's Environment and Health Strategy for the United Kingdom (2009)*** provides recommendations from the Health Protection Agency to the UK Government as to how it best can meet its commitment to the CEHAPE.

England

In England, the Department of Health is the government department responsible for public health issues. Its work includes setting national standards, shaping the direction of health and social care services and promoting healthier living.

The NHS White Paper, ***Equity and excellence: Liberating the NHS (2010)*** sets out the Government's long-term vision for the future of the NHS and consists of three mutually-reinforcing parts:

- putting patients at the heart of the NHS;
- focusing on improving outcomes; and
- empowering local organisations and professionals.

Liberating the NHS: Legislative framework and next steps (2010) is the Government's response to the consultation on the implementation of the White Paper and three further consultations:

Commissioning for patients (2010), Local democratic legitimacy in health (2010) and Regulating

healthcare providers (2010). In this document the Government's commitment to the White Paper reforms are reaffirmed and described in detail how developments in light of the consultation will be put into practice across the three parts identified in the white paper above.

The **Health and Social Care Act (2012)** enacts the proposals set out in the White paper and the subsequent rounds of consultation. The changes are designed to make the NHS more responsive, efficient and accountable, and capable of responding to future challenges. Key elements of the Act include: clinically led commissioning, service innovation, giving greater voice for patients, providing a new focus for public health, ensuring greater accountability and streamlining arms length bodies.

The Government's White Paper, **Healthy Lives, Healthy People: Our strategy for public health in England (2010)** recognises that the quality of the environment, including the availability of green space and the influence of poor air quality and noise, affects people's health and wellbeing. It details plans for a shift of power to local communities, including new duties and powers for local authorities to improve the health of local people. From April 2013, Directors of Public Health will be employed within upper tier and unitary local authorities. They will be able to influence local services, for example joining up activity on rights of way, countryside access and green space management to improve public health by connecting people with nature.

3.2.3 East Midlands

No relevant regional plans or programmes were identified under this topic.

3.3 Overview of the Baseline

3.3.1 National

UK

In the UK, during 2006-2008, life expectancy at birth was 77.4 years for males and 81.6 years for females.⁴⁸

In 2006-2008, 37% of males and 38% of females in the UK rated their health as good; 44% of males and 41% of females rated their health as very good. Consequently, around 19% to 21% of males and females in the UK felt that their health was less than good.⁴⁸

In 2007 the main causes of death in the UK were diseases of the circulatory system, and neoplasms (cancers)⁴⁸. There are high levels of hypertension and overweight/obesity in the UK. Public health

⁴⁸ ONS, United Kingdom Health Statistics 2010, http://www.statistics.gov.uk/downloads/theme_health/ukhs4/ukhs4-2010.pdf

trends often correlate with deprivation and these figures for illness are invariably far less favourable in deprived areas.⁴⁹

Deaths from respiratory diseases (including influenza, pneumonia, chronic lower respiratory disease, bronchitis, emphysema and other chronic obstructive pulmonary diseases and asthma) are higher in the UK than in any other EU Member State. In the UK there are 87.7 deaths per 100,000 males and 64.0 deaths per 100,000 females from respiratory diseases, compared to an EU average of 63.4 and 32.5⁵⁰.

England

In England, during 2006-2008, life expectancy at birth was 77.93 years for males and 82.02 years for females.⁵¹

In 2006-2008, 38% of males and 39% of females in England rated their health as good; and 44% of males and 41% of females rated their health as very good⁵¹.

The Health Survey for England, published in 2010, includes the following key findings for 2009⁵²:

- In 2009 men and women reported a similar prevalence of longstanding illness according to the Health Survey for England; 41% of men, 43% of women, and almost a quarter reported an illness limited their activity in some way; 22% of men and 23% of women.
- For adults aged 16 and over, self-reported cigarette smoking prevalence was 24% for men and 20% for women. Cigarette smoking prevalence varied by age, being higher among younger adults (32% for men and 26% for women aged 25-34) and lower among older adults (11% for men and 8% for women aged 75 and over).
- High blood pressure was 32% in men and 27% in women. The prevalence significantly increased with age in both sexes.
- The percentage of adults who were obese has gradually increased over the period examined by the HSE, from 13% of men in 1993 to 22% in 2009 and from 16% of women in 1993 to 24% in 2009.

3.3.2 East Midlands

Overall, the health of the population in the East Midlands is similar to that of the UK as a whole, but this masks wide inequalities in health levels. Male life expectancy across the region is around 78 years which is very close to the national average. Life expectancy for women across the region is around 82 which is

⁴⁹ Health Survey for England 2007 Healthy lifestyles: knowledge, attitudes and behaviour Summary of key findings, Office of National Statistics, <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=6637>

⁵⁰ ONS, United Kingdom Health Statistics 2010, http://www.statistics.gov.uk/downloads/theme_health/ukhs4/ukhs4-2010.pdf

⁵¹ ONS, United Kingdom Health Statistics 2010, http://www.statistics.gov.uk/downloads/theme_health/ukhs4/ukhs4-2010.pdf

⁵² Health Survey for England 2010, <http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england/health-survey-for-england--2009-health-and-lifestyles>

also very close to the UK average. Male life expectancy in the most deprived tenth of East Midlands' wards averages about six years less than in the least deprived tenth of wards. **Table 3.1** shows that life expectancy of residents in the East Midlands is improving.

Table 3.1 East Midlands Life Expectancy at Birth, 2004/6 – 2008/10

Region	Years				
	2004-06	2005-07	2006-08	2007-09	2008-10
<i>Males</i>					
North East	75.8	76.3	76.4	76.8	77.2
North West	75.7	76.0	76.3	76.6	77.0
Yorkshire and The Humber	76.6	76.9	77.1	77.4	77.7
East Midlands	77.3	77.6	77.8	78.1	78.4
West Midlands	76.6	76.9	77.2	77.5	77.9
East	78.3	78.7	78.9	79.3	79.6
London	77.4	77.8	78.2	78.6	79.0
South East	78.5	78.9	79.2	79.4	79.7
South West	78.5	78.7	79.0	79.2	79.5
<i>Females</i>					
North East	80.1	80.4	80.6	80.9	81.2
North West	80.3	80.5	80.6	80.8	81.1
Yorkshire and The Humber	81.0	81.1	81.3	81.5	81.8
East Midlands	81.3	81.6	81.8	82.1	82.4
West Midlands	81.1	81.4	81.6	81.9	82.2
East	82.3	82.6	82.7	83.0	83.2
London	82.0	82.4	82.7	83.1	83.3
South East	82.4	82.7	83.0	83.3	83.5
South West	82.7	82.9	83.1	83.3	83.5

Source: ONS <http://www.ons.gov.uk/ons/rel/subnational-health4/life-expec-at-birth-age-65/2004-06-to-2008-10/statistical-bulletin.html#tab-Regional-life-expectancy>

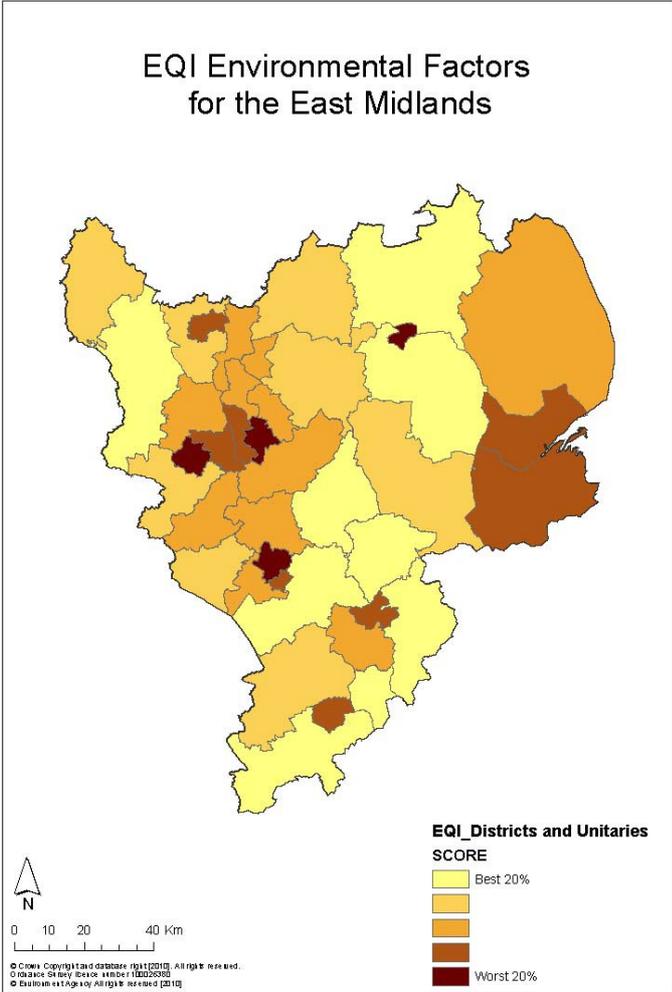
Coronary heart disease and strokes kill more people in the East Midlands than any other disease with the rate in some areas almost twice that of others. Cancer is the second most common cause of death in the East Midlands, with significant inequalities within the region. Together, these two account for almost two-thirds of all deaths in the region. Death rates from accidents are among the worst in England. There are wide geographical variations in mortality rates at local authority level within the East Midlands. Infant mortality varies significantly between the urban areas and the counties with a much higher rate in Nottingham than for Leicestershire County.

Figure 3.1 illustrates the Environmental Quality Index for the East Midlands, showing the ranking of districts into five categories combining eight environmental factors. These are air quality, derelict land, flood risk, flytipping, green space, proximity to regulated sites, river water quality and semi-natural

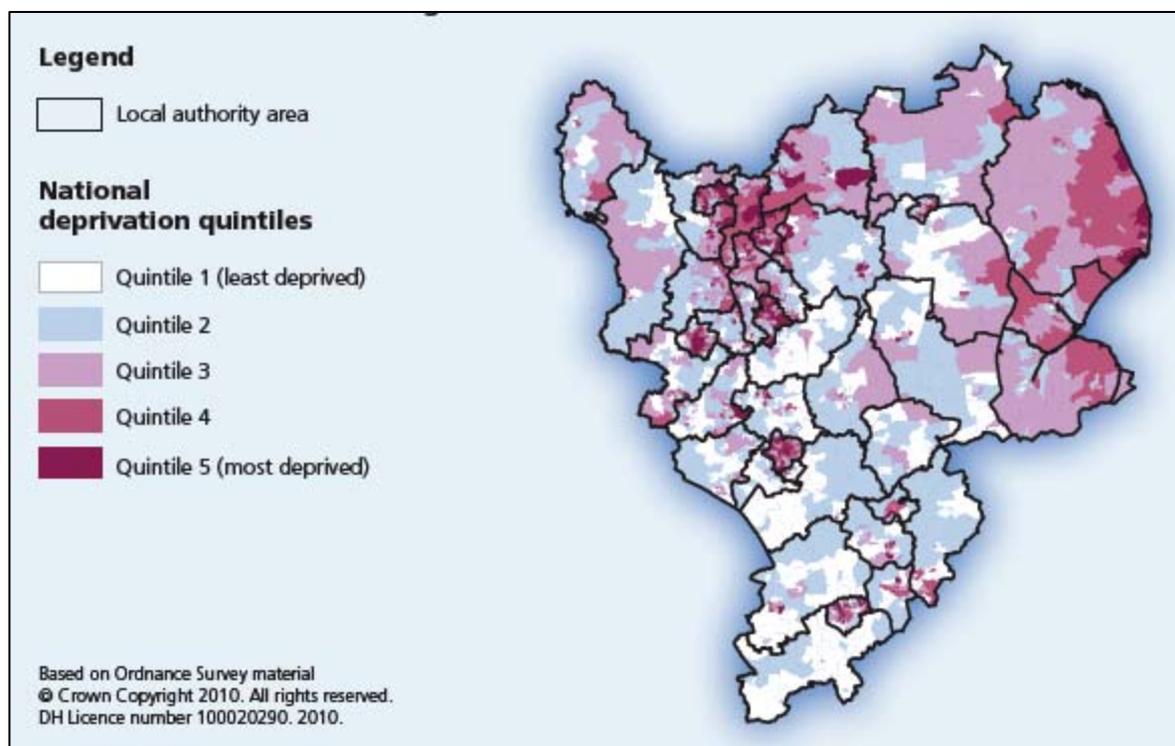
habitats. The region's cities, Derby, Leicester, Lincoln, and Nottingham have the worst environments but areas near The Wash have particular problems of flood risk.

The most unfavourable local environments as measured by the Environmental Quality Index occur in the region's cities: Derby, Leicester, Lincoln, and Nottingham. These unfavourable environments are often in places with the most deprived communities as measured by the Index of Multiple Deprivation (**Figure 3.2**). The Index of Multiple Deprivation shows that 17 per cent of East Midlands Lower Super Output Areas (LSOAs - areas of approximately 1500 people) are in the worst fifth of nationally deprived communities (source: Communities and Local Government).

Figure 3.1 EQI scores in the East Midlands⁵³



⁵³ http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Sust_places.pdf

Figure 3.2 East Midlands Index of Multiple Deprivation⁵⁴

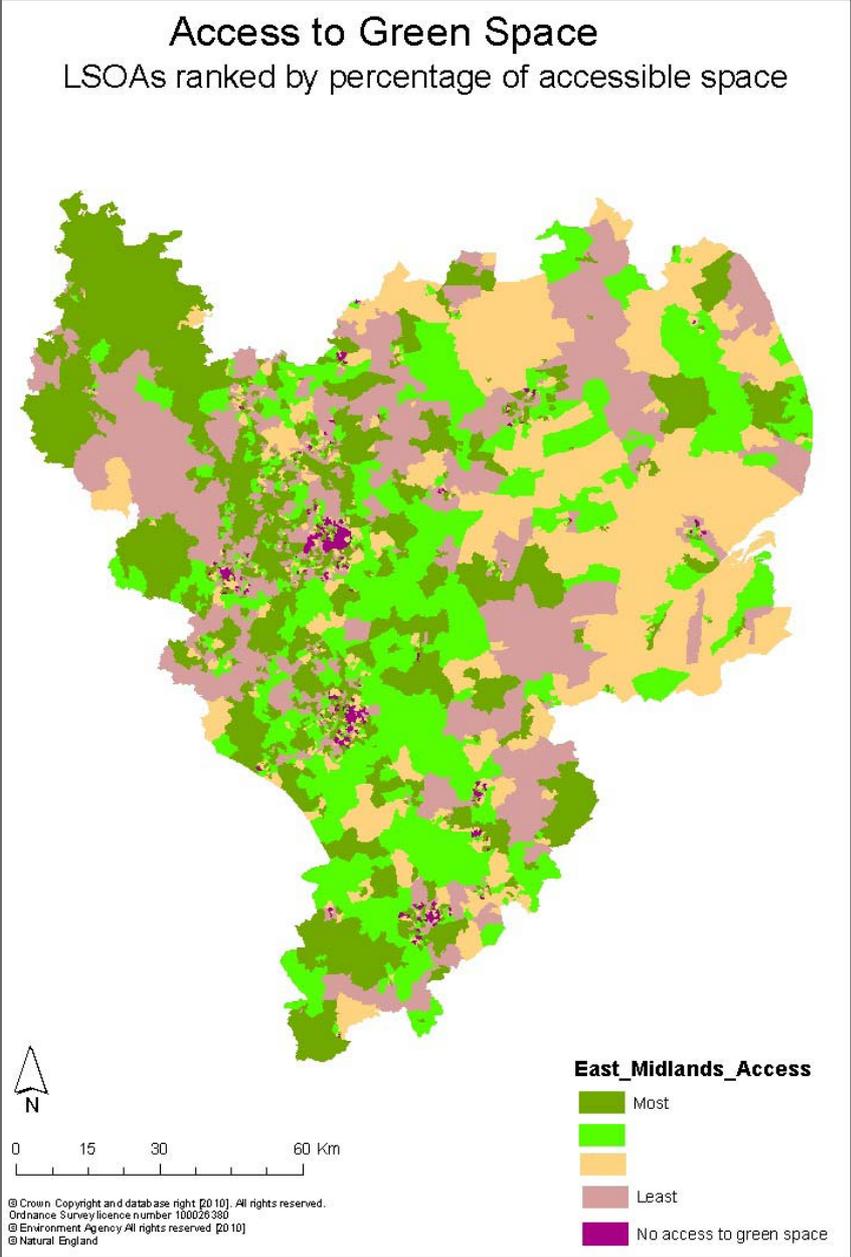
The Urban Parks Survey in 2003 identified 2,807 parks in the region, but 39% of the region's parks and open spaces are in a state of decline⁴⁰. Areas identified as having the least or a relatively low amount of open space are generally urban, particularly around the Three Cities (Nottingham, Leicester and Derby), Chesterfield, Lincoln and Northampton. The vast majority of the East Lindsey, High Peak, Wellingborough, Northampton, Broxtowe and Gedling districts are within the lowest 25th percentile of the region in terms of sports facilities. Overall, 30% of men in the East Midlands were found to be active at the level recommended by the Department of Health. This is an average of 5 or more occasions of moderate or vigorous activity (of at least 30 minutes duration) per week (Level 3 of sport participation).

More men (38%) than women (23%) were active at this level. Relatively few people aged 65 and over met the recommended levels. 61% of girls and 45% of boys aged 2-15 years in the East Midlands do not meet the Government's minimum physical activity guideline of one hour a day. In East Midlands' men, the proportion active at Level 3 is higher for the manual social classes (43%) compared to women who are more active in the non-manual social classes (28%). The activity levels in the East Midlands are very similar to the rest of England. The East Midlands has a number of world-class facilities and centres such as the Sport England funded National Ice Centre in Nottingham.

⁵⁴ www.apho.org.uk/resource/view.aspx?RID=85384

The East Midlands has a wide range of accessible green space, from parks, footpaths, woods and nature reserves, to major destinations such as the Peak District National Park, Sherwood Forest and Rutland Water. The Peak District National Park attracts 22 million visitors per year, almost one third of all annual visits to English National Parks. 665,000 people visit the National Nature Reserves at Gibraltar Point, Saltfleetby and Donna Nook on the Lincolnshire coast each year. The region's public rights of way network provides 18,000 km of local routes, around 10% of the national network. These routes serve the recreational needs of a wide range of users, providing sustainable travel options. All nine access authorities in the region have produced Rights of Way Improvement Plans, prioritising improvements to local access networks, such as creating short, circular route connections close to where people live, and reconnecting routes for horse riding and cycles. The quality of our green spaces is increasingly recognised through the national Green Flag award. There are now 56 Green Flag award holders in the region (8% of the English total), including urban parks and gardens, woodland sites and arboreta, Local Nature Reserves and country parks. These annual awards are based on the quality of welcome, sustainability, heritage, nature conservation and community involvement. **Figure 3.3** shows LSOAs ranked according to the percentage of accessible space within them and put into five categories. Accessible space includes natural habitats, parks, paths and cycle ways. The LSOAs with the least amount of space are within the region's largest towns and cities.

Figure 3.3 Accessible Natural Greenspace in the East Midlands⁵⁵



⁵⁵ Natural England State of the Countryside <http://publications.naturalengland.org.uk/publication/38013?category=118044>

3.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

3.4.1 UK

Health inequalities exist in many communities, often exacerbated by poor access to or use of health services. Any future funding constraints on health services are likely to affect this situation.

At present, respiratory illness places a significant burden on the health service which is partly attributable to existing air pollution. According to Occupational Health and Safety Information Service (2006), death rates from respiratory disease are higher in the UK than both the European and EU average. The report also suggests that respiratory disease costs the NHS and society £6.6 billion.

3.4.2 East Midlands

There are wide geographical variations in mortality rates at local authority level within the East Midlands. Infant mortality varies significantly between the urban areas and the counties with a much higher rate in Nottingham than for Leicestershire County. The region's cities, Derby, Leicester, Lincoln, and Nottingham have the worst environments but areas near The Wash have particular problems of flood risk. The most unfavourable local environments as measured by the Environmental Quality Index occur in region's cities: Derby, Leicester, Lincoln, and Nottingham. These unfavourable environments are often in places with the most deprived communities as measured by the Index of Multiple Deprivation The Index of Multiple Deprivation shows that 17 per cent of East Midlands Lower Super Output Areas (LSOAs - areas of approximately 1500 people) are in the worst fifth of nationally deprived communities (source: Communities and Local Government).

3.5 Likely Evolution of the Baseline

3.5.1 National

UK

Life expectancy at birth in the UK has reached its highest level on record for both males and females. A newborn baby boy could expect to live 77.7 years and a newborn baby girl 81.9 years if mortality rates remain the same as they were in 2007-2009. Females continue to live longer than males, but the gap has been closing.

Although both sexes have shown annual improvements in life expectancy at birth, over the past 27 years the gap has narrowed from 6.0 years to 4.2 years. Based on mortality rates in 1980-1982, 26% of newborn males would die before age 65, but this had reduced to 15% based on 2007-2009 rates. The equivalent figures for newborn females were 16% in 1980-1982 and 10% in 2007-2009. Life expectancy at age 65, the number of further years someone reaching 65 in 2007-2009 could expect to live, is also

higher for women than for men. Based on 2007-2009 mortality rates, a man aged 65 could expect to live another 17.6 years, and a woman aged 65 another 20.2 years.

Within the UK, life expectancy varies by country, with the highest life expectancy at birth and at age 65 is higher for England than for the other countries of the UK.⁵⁶

England

The current general trend in human health is generally towards improved health, greater life expectancy and reduced mortality from treatable conditions.⁵⁷

For example, life expectancy for males in England increased from 76.9 years in 2003-05 to 78.3 years in 2007-09, an increase of 1.4 years. For females, life expectancy increased by 1.2 years from 81.1 to 82.3 years over the same period⁵⁸. Trends in respiratory illness are downwards and are expected to continue like this, although a significant factor to be considered is that measured pollution is also affected by the weather, and hot summers in 2003 and 2006 significantly increased these levels⁵⁹.

3.5.2 East Midlands

Overall, the health of the population in the East Midlands is similar to that of the UK as a whole, but this masks wide inequalities in health levels. Male life expectancy across the region is around 78 years which is very close to the national average. Life expectancy for women across the region is around 82 which is also very close to the U.K. average. Male life expectancy in the most deprived tenth of East Midlands' wards averages about six years less than in the least deprived tenth of wards.

3.6 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Despite there being many minor positive and some minor negative effects associated with the East Midlands Regional Plan policies, both for retention and revocation, there were judged to be no significant effects. This reflects the difficulty of assessing the impact of policies which interact with one another, particularly over the longer term and the way in which different combinations of policies could affect different groups. For example, the provision of green infrastructure, whilst being a positive aspiration has widely differing impacts according to social group and type of current provision. Additional provision therefore whilst being helpful in principle, cannot be scored as a significant positive effect, for population at least.

⁵⁶ Office for National Statistics, <http://www.statistics.gov.uk/cci/nugget.asp?id=168>

⁵⁷ Health Survey for England 2007 Healthy lifestyles: knowledge, attitudes and behaviour Summary of key findings, Office of National Statistics, <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=6637>

3.7 Mitigation Measures

There are no mitigating measures are proposed for this topic.

⁵⁸ ONS (2009) <http://www.statistics.gov.uk/pdffdir/liex0611.pdf>

⁵⁹ Defra 2008

4. Soil and Geology

4.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of revoking the regional strategy on soil, geology and land use. Information is presented for both national and sub-regional levels.

Soil and geology within this context is concerned with important geological sites, and the contamination of soils. Land use in this context is concerned with the effective use of land i.e. by encouraging the reuse of land that has been previously developed (brownfield land) as well promoting sustainable patterns of land use e.g. in relation to the protection of open spaces and green infrastructure.

There are links between the soil and geology topic and other topics in the SEA, including material assets.

4.2 Summary of Plans and Programmes

4.2.1 International

The **European Thematic Strategy on Soil Protection (2006)** sets out the European Commission's strategy on soils and includes a proposal for an EU wide **Soils Directive**. The overall objective of the strategy is the protection and sustainable use of soil, based on the following guiding principles:

- preventing further soil degradation and preserving its functions;
- when soil is used and its functions are exploited, action has to be taken on soil use and management patterns;
- when soil acts as a sink/receptor of the effects of human activities or environmental phenomena, action has to be taken at source; and
- restoring degraded soils to a level of functionality consistent at least with current and intended use, thus also considering the cost implications of the restoration of soil.

The **EU Waste Incineration Directive (2000/76/EC)** aims to introduce measures to prevent or reduce as far as possible air, water and soil pollution caused by the incineration of waste, as well as the resulting risk to human health. The measures set out under the Directive include a prior authorisation requirement for incineration and co-incineration plants, and emission limits for certain pollutants released to air or to water. The requirements of the Directive have been developed to reflect the ability of modern incineration plants to achieve high standards of emissions control.

The **EU Integrated Pollution, Prevention and Control (IPPC) Directive (2008/1/EC)** defines the obligations to which industrial (including waste management) and agricultural activities with a high pollution potential must comply, through a single permitting process. It sets minimum requirements to be included in all permits, particularly in terms of pollutants released. The aim of the Directive is to prevent or reduce pollution being released to the atmosphere, water and soil, as well as reducing the quantities of waste arising from industry and agriculture. In order to gain an IPPC permit, operators must demonstrate that they have systematically developed proposals to apply the 'Best Available Techniques' (BAT) to pollution prevention and control and that they address other requirements relevant to local factors.

The European Commission reviewed European legislation on industrial emissions in order to ensure clearer environmental benefits, remove ambiguities, promote cost-effectiveness and to encourage technological innovation. The review led to the commission proposing and adopting a recast **Directive on Industrial Emissions (IED) (2010/75/EU)** which came into force on 6 January 2011.

A number of other European Directives contribute indirectly to soil protection including on **Habitats (92/43/EEC)**, **Air (2008/50/EC)**, **Water (2000/60/EC)** and **Nitrates (91/676/EEC)**.

The **World Summit on Sustainable Development (2002)** in Johannesburg proposed broad-scale principles which should underlie sustainable development and growth including an objective on greater resource efficiency. Reusing previously developed land is a good example of resource efficiency of land.

The conservation of resources is one of the underlying objectives of the **European Spatial Development Perspective (ESDP) (1999)** the framework for policy guidance to improve cooperation among community sectoral policies. There also exists a range of legislation in relation to resources.

UK

The **Environmental Protection Act (1990)** defines within England, Scotland and Wales the legal framework for duty of care for waste, contaminated land and statutory nuisance.

The **Environment Act 1995** seeks to protect and preserve the environment and guard against pollution to air, land or water. The Act adopts an integrated approach to environmental protection and outlines where authorisation is required from relevant authorities to carry out certain procedures as well as outlining the responsibilities of the relevant authorities. The Act also amends the Environment Protection Act 1990 with regard compulsory remediation of contaminated land. Environmental Protection Act was also modified in 2006 to cover radioactivity, and then a further modification made in 2007 to cover land contaminated with radioactivity originating from nuclear installations.

The **Wildlife and Countryside Act 1981** allows the designation of SSSIs for sites with geological importance.

England

The ***Contaminated Land (England) Regulations 2006*** sets out provisions relating to the identification and remediation of contaminated land. It identifies sites requiring regulation as 'special sites' and adds land contaminated by radioactive substances to this classification.

In June 2011, the Government outlined its vision for England's soils in the ***Natural Environment White Paper (NEWP)***. This set a clear target that by 2030 all of England's soils will be managed sustainably and degradation threats tackled successfully, in order to improve the quality of soil and to safeguard its ability to provide essential ecosystem services and functions for future generations. As part of this vision, the Government committed to undertaking further research to explore how soil degradation can affect the soil's ability to support vital ecosystem services; and how best to manage lowland peatlands in a way that supports efforts to tackle climate change. This will inform our future policies and the direction of future action towards 2030.

The Government has recently reviewed the contaminated land regime in England for the first time since its introduction in 2000. Following the review of the contaminated land regime including public consultation, revised ***Statutory Guidance has now been issued under Part 2A of the Environmental Protection Act 1990***. This revised Statutory Guidance while still taking a precautionary approach, allows regulators to make quicker decisions about whether or not land is contaminated under Part 2A preventing costly remediation operations being undertaken unnecessarily. It also offers better protection against potential health impacts by concentrating on the sites where action is actually needed.

The ***National Planning Policy Framework (NPPF)*** states that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interests and soils; preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil pollution or land instability; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate (paragraph 109). Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality (paragraph 112). The NPPF also states that planning policies should encourage the effective use of land by reusing land that has been previously developed, provided that it is not of high environmental value (paragraph 111). The NPPF also reaffirmed the Government's commitment to maintaining Green Belts. It states that local planning authorities with Green Belts in their area should establish Green Belt boundaries in their Local Plans which set out the framework for Green Belt and settlement policy. Once established, Green Belt boundaries should only be altered in exceptional circumstances.

4.2.2 East Midlands

The ***East Midlands Regional Plan (March 2009)*** sets out policies and proposals for the East Midlands providing the framework for meeting the Region's development needs in a way that promotes a more

sustainable pattern of development. The Spatial Strategy outlines regional priorities for both urban and rural communities. It defines the designations of Principal Urban Area (PUA) and Sub-Regional Centre (SRC), and outlines priorities for their development. The Strategy also contains policies in respect of the Region's 5 Sub-areas: Eastern Sub-area; Northern Sub-area; Peak Sub-area; Southern Sub-area; Three Cities Sub-area. The Plan contains topic-based priorities relating to: housing; economy & regeneration, natural & cultural resources, and the regional transport strategy. There are four sub-regional strategies within the Plan: *MKSM Sub-Regional Strategy* which contains policies and proposals for sustainable growth in Northamptonshire as part of the MKSM Growth Area. The only changes from the adopted version of the SRS relate to housing provision in North Northamptonshire for the period 2021-26, and the replacement of the housing provision figure for the Northampton Implementation Area (NIA). The *Three Cities Sub-Regional Strategy* which contains policies and proposals to create more sustainable patterns of development and movement within (and between) Derby, Leicester & Nottingham and their hinterlands, and to promote overall economic competitiveness. It also covers the Nottingham/Derby Green Belt. The *Northern Sub-Regional Strategy* which contains policies and proposals to provide a clear vision for regeneration following the decline of the coal mining industry, and takes account of the delivery of the 'Northern Way' initiative. The *Lincoln Area Sub-Regional Strategy* which contains policies and proposals to strengthen the regional role of Lincoln within its rural hinterland.

Other regional plans relating to the soil and land use are:

- East Midlands Rural Priorities Framework (EMRA, 2005)
- Regional Delivery Plan for Sustainable Food and Farming (East Midlands Rural Affairs Forum, 2003)
- East Midlands Soil and Environmental Resource Review. Report for East Midlands Regional Assembly - Project ENV002/AH

4.3 Overview of the Baseline

4.3.1 National

UK - Soils and Geology

The geology of the UK is diverse and has resulted in over 800 soil types. As a broad overview the following rock types exist in a progression from North West to South East (predominant rock types): Tertiary Volcanic Rocks; Crystalline Rock of Pre-Cambrian and later age; Lower Carboniferous to Cambrian; Triassic and Permian; Early Precambrian and Devonian; Jurassic; Cretaceous; Tertiary and Marine Pleistocene; and finally a return to Cretaceous.⁶⁰

⁶⁰ Agricultural Land Classification, protecting the best and most versatile agricultural land, Natural England, January 2009

The quality of the land across the UK varies, with the best and most versatile agricultural land generally situated in the lowland and valley areas of England. Due to the topography and terrain, much of Scotland and Wales is classified as lower grade land. An estimated 21% of all farmland in England is Grade 1 and 2 land, with a similar percentage graded as subgrade 3a land. These grades are the best and most versatile land grades as classified under the Agricultural Land Classification System.⁶¹

The UK has a diversity of mountain ranges and flood plains. In England, the southern part of the country is predominantly lowland, with mountainous terrain north-west of the Tees-Exe line (the Lowland-Upland divide across England), which includes the Cumbrian Mountains of the Lake District, the Pennines and limestone hills of the Peak District, Exmoor and Dartmoor.⁶²

There are an estimated 2,050 geological SSSIs in UK.^{63, 64, 65}

Across the UK there are also a number of non-statutory geological and geomorphological sites designated at a local level, i.e. often known as Local Geological Sites (formerly Regionally Important Geological and Geomorphological Sites (RIGS)). There are over 50 Local Sites groups in the UK⁶⁶.

In 2005 there was estimated to be around 413,906 hectares of land affected by industrial activity in England and Wales which may be contaminated, (around 2% of the land area in England and Wales)⁶⁷.

UK - Land Use

The UK covers an area of 2,472,900 hectares (242,514km²). England comprises the largest land area in the UK, covering an area of 13,028,100 hectares (130,281km²). The smallest land area in the UK is Northern Ireland, which covers an area of 1,357,600 hectares (13,576km²).

Average population density of UK is 247 people per km².

Table 4.1 shows land cover in the UK as it stood in 2007 and shows that arable and horticulture and improved grassland are the most common land cover types in the UK, constituting 20.4% and 19.9% of total land area in the UK respectively.

⁶¹ England's geology, Natural England, <http://www.naturalengland.org.uk/ourwork/conservation/geodiversity/englands/default.aspx>

⁶² State of the Environment Report 2008, Natural England, 2008, <http://naturalengland.etraderstores.com/NaturalEnglandShop/NE85>

⁶³ Geoconservation Sites, <http://www.geoconservation.com/sites/sssi.htm>

⁶⁴ Natural England RIGS, <http://www.naturalengland.org.uk/ourwork/conservation/designatedareas/lgs/default.aspx>

⁶⁵ The Scottish Soil Framework, Scottish Government, May 2009, <http://www.scotland.gov.uk/Publications/2009/05/20145602/13>

⁶⁶ Geoconservation Sites, <http://www.geoconservation.com/sites/sssi.htm>

⁶⁷ Indicators for Land Contamination, Science Report SC030039/SR, Environment Agency, August 2005

Table 4.1 Estimated Area of Broad Habitats in the UK in 2007⁶⁸

Land Type	'000 hectares	% land area
Broadleaved, mixed and yew woodland	1406	6.2
Coniferous woodland	1319	5.8
Linear features	496	2.2
Arable and horticulture	4608	20.4
Improved grassland	4494	19.9
Neutral grassland	2176	9.6
Calcareous grassland	57	0.3
Acid grassland	1589	7.0
Bracken	260	1.1
Dwarf shrub heath	1343	5.9
Fen, Marsh, Swamp	392	1.7
Bog	2232	9.9
Standing open waters ¹	204	0.9
Rivers and streams ¹	58	0.3
Montane	42	0.2
Inland rock	84	0.4
Built-up areas and gardens	1323	5.8
Other land	113	0.5
Unsurveyed land ²	522	2.3
Total³	22627	

⁶⁸ ONS (2009) <http://www.statistics.gov.uk/STATBASE/Expodata/Spreadsheets/D5325.xls> (accessed 22.10.2009)

England - Soils and Geology

In England there was estimated to be around 307,672ha of land that may be contaminated. A total of 659 sites had been determined as 'contaminated land' in England by the end of March 2007. At the time of reporting, no site has been determined as contaminated land due to radioactivity⁶⁹.

Natural England (2008) report that there are 1,214 SSSIs designated for their geodiversity features covering 1,704 Geological Conservation Review (GCR) sites (which identified nationally important features of geological interest). Many SSSIs have more than one GCR feature and some GCR features extend over more than one SSSI, giving a total of 1,735 SSSI-GCR combinations, or 'geo-features'. The proportion of GCRs in favourable/recovering status varied between 76-94% depending on its category of GCR (each category is reported separately).

Within England, 87.7% of the land area is classed as agricultural land⁷⁰. Of the remainder, 5% is non agricultural and 7.3% is urban. Of the 87.7% of land classed as agricultural, 65.1% is classed as moderate or better.

There are no formal international designations for geodiversity sites equivalent to the SPA and SAC designations for biological features, although the geodiversity of the Dorset and East Devon Coast is recognised through designation as a World Heritage site.

England contains two Geoparks: the English Riviera in Devon and the North Pennines AONB. These are areas considered by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) to be of international importance for geological heritage that should be safeguarded and sustainably managed and include strong local involvement. Two further areas in England (Abberley and Malvern Hills and the Cotswold Hills) identify themselves as Geoparks.

England – Land Use

The average population density of England is 385 people per km²⁷¹.

Table 4.2 shows land cover in England as it stood in 2007 and highlights arable and horticulture and improved grassland as the most common land use covers (covering 30.4% and 21.7% of total land in England respectively).

⁶⁹ Dealing with contaminated land in England and Wales A review of progress from 2000-2007 with Part 2A of the Environmental Protection Act, Environment Agency, January 2009

⁷⁰ Agricultural land classification (ALC) Statistics from the digital 1:250,000 scale Provisional ALC map (www.magic.gov.uk)

⁷¹ Office of National Statistics, http://www.statistics.gov.uk/geography/uk_countries.asp

Table 4.2 Land Cover in England in 2007⁷²

England Land Cover 2007	'000 ha	% area
Broadleaved, Mixed and Yew Woodland	981	7.4
Coniferous Woodland	257	1.9
Boundary and Linear Features	353	2.7
Arable and Horticulture	4,002	30.4
Improved Grassland	2,856	21.7
Neutral Grassland	1,453	11.0
Calcareous Grassland	30	0.2
Acid Grassland	396	3.0
Bracken	91	0.7
Dwarf Shrub Heath	331	2.5
Fen, Marsh and Swamp	117	0.9
Bog	140	1.1
Standing Open Water and Canals	97	0.7
Rivers and Streams	29	0.2
Built-up Areas and Gardens	1,038	7.9
Other land	580	4.4
Unsurveyed Urban Land	428	3.5
TOTAL	13,180	100

The majority of land in England (around 72%) is in agricultural use. A further 8.6% is used for woodland and forestry. Whilst developed land accounts for around 10% of the total area, only a very small proportion of the land (1.14%) is occupied by domestic buildings (e.g. houses), with domestic gardens accounting for almost half of the 'developed area' (over 4% of the national land area). Roads account for around 2% and rail 0.14% of the total.

⁷² ONS (2009) <http://www.statistics.gov.uk/STATBASE/Expodata/Spreadsheets/D5325.xls> (accessed 22.10.2009)

4.3.2 East Midlands

Agriculture makes up around 78 per cent of the region's total land area and significant urban areas making up around three per cent. Although cities are major hubs of employment agriculture is important to the region's economy employing just under 40,000 people⁷³.

The region (outside of the Peak District) can be divided up into 11 different soil groupings⁷⁴. The dominant soil types in the region are clay loams and sandy loams. These soil types are very versatile in their cropping potential when drained, however, large areas of clay topsoil can result in management problems⁸.

Key facts⁷⁵ relating to soils and their use are:

- Over 1.2 million hectares of land are used for agriculture with over 22,000 farms in the region; 43 per cent of these are small farms with less than five hectares of land.
- Although the number of farms in the region has risen by 4,500 between 2000 and 2008, the number of people actually employed on those farms declined.
- Farming is mixed with cereals being the main crop type but there are also around 1.2 million sheep, half a million cattle, 408,000 pigs and 23.3 million poultry on East Midlands farms.
- Lincolnshire accounts for over 85 per cent of the region's horticulture and around half of the region's arable crops and fallow area.
- Just under a third of the region's sheep and cattle are on farms in South and West Derbyshire.
- Around half of the pigs and 60 per cent of the region's poultry are farmed in Lincolnshire.

Agriculture occupies nearly 80% of the land area in the East Midlands⁷⁶. Industries supporting agriculture, including food processing, storage and transport, are also strong in the region with agriculture and the food chain combined producing 17.5% of the region's GDP. Agriculture in the region contributes approximately £1.5billion in GDP, 10% of total UK output. The East Midlands is the third highest region in terms of agricultural output of all the English regions. Agriculture and horticulture employ 42,000 full, part-time and seasonal workers, or 2.3% of the workforce, which is the highest proportion of all English regions. An increase in productivity on many farms has also resulted in

⁷³ Environment Agency State of the Environment Report (2010) http://www.environment-agency.gov.uk/static/documents/Research/MIDS_East_SOE_Agri_LM.pdf

⁷⁴ Report for the East Midlands Regional Assembly – Project ENV002/AH. East Midlands Soil and Environmental resource Review. June 2006.

⁷⁵ Environment Agency State of the Environment Report (2010) http://www.environment-agency.gov.uk/static/documents/Research/MIDS_East_SOE_Agri_LM.pdf

⁷⁶ East Midlands Think Farming and Food. Action Plan for the East Midlands. Rural Affairs Forum, 2003

significant differences in income between the most profitable producers and the rest. Very few farms are making sufficient profit to reinvest in their business. 20% of the region's farms produce approximately 80% of the region's total farm produce. Arable, especially cereal, production is the largest sub-sector with land use and yields being significantly above the national average¹¹.

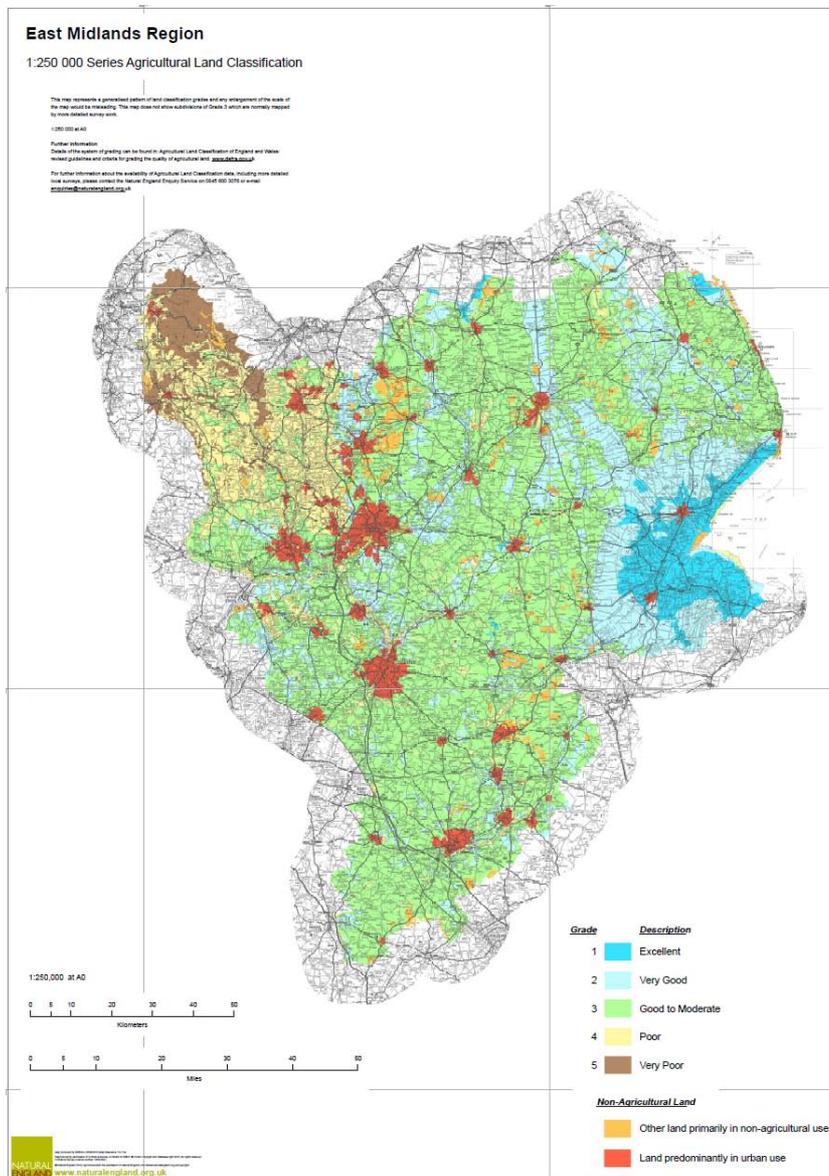
Over 838,000 hectares (or 66%) of the Region's farmland are covered by agri-environment schemes to create a viable farming industry with responsible, environmental practices. Around 5,500 hectares of the Region's arable land is used to grow energy crops, although there is significant projected demand from major power generators based in or close to the region. Moorland in the Peak District holds between 16-20million tonnes of carbon.

In terms of Agricultural Land Classification, approximately 80% of the agricultural land in the East Midlands is classified as Grade 3 land, 10% is Grades 1 and 2 and the remaining 10% is Grades 4 and 5.⁷⁷ The majority of Grade I and II agricultural land is located in low-lying coastal areas. The lower grade agricultural land is concentrated in the uplands of the Peak District (**Figure 4.1**). The total amount of grade 1 land contains 34% of the total natural resource of the best, most versatile grade 1 agricultural land in the country, which produces 24% of the nation's vegetables and 18% of the national cereal holdings. The region accounts for 32% of England's total land area under vegetables and salads grown in the open and in Lincolnshire the outdoor flower bulb industry is of international significance¹¹. Livestock rearing is also a significant regional industry with the 2002 census indicating the region to have 523,000 cattle, over 1.3 million sheep, 9% of the national pig herd and 15% of UK poultry production as well as the second largest egg production of all English regions¹¹.

Diversification into industries such as tourism is highly likely to continue. A survey by The University of Nottingham in 2003 showed that 55% of sampled farm businesses in the East Midlands are involved in one or more diversified activities and 62% of full-time farm businesses are involved in diversified activities of some kind. The market for non-food crops such as bio-fuels is developing and there is also a trend away from the production of commodity goods and towards more 'value added' farm products.

⁷⁷ Report for the East Midlands Regional Assembly – Project ENV002/AH. East Midlands Soil and Environmental resource Review. June 2006.

Figure 4.1 East Midlands Agricultural Land Classification⁷⁸



Previously developed land (brownfield land) is defined as land that is or was occupied by a permanent structure (excluding agricultural or forestry buildings), and associated fixed surface infrastructure. In 2007 the East Midlands had 10.2% of the total derelict land and buildings in England, which was the fifth highest figure. In the same year, the East Midlands had 6,360 ha of previously developed land (PDL) that was unused or may be available for redevelopment, 39% of which was suitable for housing (**Table 4.3**).

⁷⁸ <http://publications.naturalengland.org.uk/publication/143027?category=591074>

Table 4.3 Previously Developed Land Available for Redevelopment, 2007⁷⁹

Region	All PDL that is unused or may be available for redevelopment (ha)	Total area suitable for housing (ha)
North West	10,910	3,640
South East	8,990	4,580
Yorkshire & the Humber	9,110	3,030
East of England	6,890	4,180
East Midlands	6,360	2,460
South West	5,960	2,600
West Midlands	5,930	2,480
North East	4,030	1,420
London	3,930	2,130
England	62,130	26,510

In 2009, 57% of new dwellings in the East Midlands were built on previously developed land (a fall of 11 percentage points from the previous year). The national rate was 77%⁸⁰.

Derelict and contaminated land can be important in terms of biodiversity and regeneration and a deterrent for potential investors. There are a number of post-industrial habitats (previously developed land for buildings, industrial operations and quarries) across the region, most notably in Nottinghamshire, Derbyshire, Leicestershire coalfields, Peak District quarries and on the hinterland of settlements such as Corby. Since 1993, much of the region’s derelict land has been reclaimed for forestry. The number of post-industrial habitats is declining due to the re-use of brownfield sites. The high number of spoil heap sites and derelict railway sites are evidence of the region’s former mining history. Mining is also a source of contamination. Redundant military sites in the east of the region reflect the closure of military bases.

4.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

4.4.1 National

UK - Soil and Geology

Human activity has left a legacy of soil contamination and pollution that pose a risk to water quality, ecosystems and human health as well as to land and property value.

- Significant areas across the UK carry a burden of contamination from industrial activity, although this is progressively being cleaned up as sites are redeveloped. Whilst contamination is remediated during redevelopment, the process can be expensive.

⁷⁹ Previously-Developed Land that may be available for Development: England 2006 (June 2007)

⁸⁰ East Midlands Councils (February 2011) The East Midlands in 2009/10

- Disturbance of contaminated sites carries the risk of pollution pathways being created or re-opened for any existing ground contamination.
- There is currently increasing pressure on rural and agricultural land from developers as urban areas expand. Future population growth leading to an increase in the need for housing and related urban development infrastructure will put more pressure on protected land including important geological sites.
- Soils in England continue to be degraded by human actions including intensive agriculture, historic levels of industrial pollution and urban development, making them vulnerable to erosion (by wind and water), compaction and loss of organic matter⁸¹. Effects include:
 - Soil erosion by wind and rain: erosion affects both the productivity of soils but also water quality and aquatic ecosystems.
 - Compaction of soil reduces agricultural productivity and water infiltration, and increases flood risk through higher levels of run-off.
 - Organic matter decline: the loss of soil organic matter reduces soil quality, affecting the supply of nutrients and making it more difficult for plants to grow, and increases emissions to the atmosphere.

As the climate (including temperature and rainfall patterns) changes in the future, it is likely that soils have the potential to be further degraded, both as a result of the direct and indirect impacts of climate change, for example as land managers adapt their practices and the crops that they grow. Climate change and loss of organic matter are the most significant threats to Scottish soils⁸². The effect of industry, agricultural practices, forestry and climate change upon soils, particularly carbon rich peat soils, is also a key issue. Key pollutants include chemicals, oil or waste. Organic waste, including sewage sludge, is one of the main sources of heavy metal contamination of soils from human activities⁸².

In Wales the small proportion of land that is classified as 'best and most versatile' agricultural land needs to be conserved. There is also a need to protect soils in uplands and wetlands which contain high amounts of carbon and are vulnerable to acidification⁸³.

The main pressures in Northern Ireland are development, infrastructure, mineral extraction industries, and tourism. A major problem in farmland is the over-accumulation of phosphorus in the soil, due to agricultural fertilisers. The intensification and expansion of agriculture is a key pressure on soil quality and erosion⁸⁴.

⁸¹ <http://www.defra.gov.uk/food-farm/land-manage/soil/>

⁸² State of the environment and trends – Scotland, <http://www.seaguidance.org.uk/11/State-of-the-Environment.aspx>

⁸³ Environment Strategy for Wales, Welsh Assembly Government, 2006, <http://wales.gov.uk/topics/environmentcountryside/epg/envstratforwales/strategy/?lang=en>

⁸⁴ Planning and Land Contamination, Northern Ireland Environment Agency, <http://www.ni-environment.gov.uk/land-home/land-quality.htm>

UK - Land Use

Of UK land 5.6% is currently classed as 'built up.' Development pressure remains a constant factor in parts of the country, and it is not expected that previously-developed land will be able to fully deliver the UK's future needs. This will continue to place development pressures in rural areas and the urban fringe.

When greenfield land is used for development, it is likely to result in the permanent loss of that land from other uses such as agriculture. There are similar pressures to build across each of the UK administrations, however the details differ slightly between each.

The 2008 State of the Natural Environment report⁸⁵ noted that within rural England, the area of developed land had increased by about 4% since 1990, largely by using agricultural land and that between 1998 and 2003 substantial greenfield development has occurred near many urban areas, notably at key growth points, but also in former coalfield belts. It said the pace of development within England was increasing, particularly for housing in response to demand and a historic shortfall in housing provision and that this was expected to have a dramatic effect on a large part of central and southern England though the series of the then identified Growth Areas and Growth Points.

East Midlands

Key issues and trends are:

- Loss of, and damage to, the best and most versatile agricultural land.
- Sterilisation of mineral reserves.
- Maximising opportunities for the recycling of land, particularly on good transport routes.
- Encouraging sustainable land management practices.
- Biodiversity decline: The East Midlands has the poorest biodiversity of all the regions due to agricultural intensification.
- Locations of previously developed land: There is a large concentration of previously developed land across the region, which are different in character and can have important historic remains. For example Lincolnshire has a high proportion of former military bases and Nottinghamshire has a high level of mining extraction sites.
- Climate change: This will greatly affect the region's agriculture – in terms of the type of crop grown and irrigation required.

⁸⁵ Natural England (2008) <http://www.naturalengland.org.uk/publications/sone/default.aspx>

4.5 Likely Evolution of the Baseline

4.5.1 National

UK - Soils and Geology

There is little data on the long term trends associated with soil. In 2010, the Foresight Project completed the Land Use Futures Project to take a long-term view of all types of land use to analyse future land use challenges through looking at pressures and trends and developing scenarios and models, including the consideration of soil issues⁸⁶. The Natural Environment White Paper commits the Government to undertake a significant research programme over the next four years to explore how soil degradation can affect the soil's ability to support vital ecosystem services such as flood mitigation, carbon storage and nutrient cycling; and how best to manage lowland peatlands.

There is a steady loss of soils to development, contaminated sites, damage by muddy floods and water pollution by silt and fertilisers. Continued pressure of development will result in the loss of productive soil, although it is also likely to lead to the remediation of contaminated soils. As more brownfield land is developed there may be more pressure for development on greenfield land which is likely to increase loss of soil resources. Climate change means that the UK is likely to see an increase in rainfall intensity which could lead to increased soil loss due to erosion.

However, the increase in public and policy awareness regarding geological SSSI sites and Geoparks may lead to an increase in the number of sites protected and managed. As quarries come to the end of their working lives there is potential for their identification and conservation as geologically important sites.

As there are now more stringent statutory controls on land contamination and remediation, increased areas of historic contamination are being remediated and fewer areas are being left in a contaminated state following decommissioning of commercial and industrial sites. Major remediation, regeneration and development projects, such as the Olympic Park and Thames Gateway developments in London are likely to further decrease the total area of contaminated land within the UK.

There are a number of European directives that are either currently being implemented or are under discussion that may influence the way in which land contamination is managed in the future (i.e. the Environmental Liabilities, Soil, Water, Groundwater and the Waste Framework Directives). The implementation of these regimes into UK legislation is likely to affect how contaminated land is dealt with⁸⁷.

⁸⁶ http://www.bis.gov.uk/assets/foresight/docs/land-use/luf_report/8614-bis-land_use_futures_exec_summ-web.pdf

⁸⁷ Dealing with contaminated land in England and Wales A review of progress from 2000-2007 with Part 2A of the Environmental Protection Act, Environment Agency, January 2009

UK – Land Use

The estimated broad habitat type in the UK and how it has changed from 1984 to 2007 was calculated by the Office of National Statistics⁸⁸ and is shown in **Table 4.4**. It shows that the area of land cover under arable and horticulture has decreased by 9.1% between 1998 and 2007. The area of grassland land cover has generally increased with improved grassland increasing by 5.7%. Built-up areas and gardens have increased by 3.4% between 1998 and 2007.

Table 4.4 Estimated Area ('000 ha) of Broad Habitats in the UK in 1984, 1990, 1998 and 2007

Land Type	1984	1990	1998	2007	% change between 1998 and 2007
Broadleaved, mixed and yew woodland	1317	1343	1328	1406	5.9
Coniferous woodland	1243	1239	1386	1319	-4.8
Linear features	491	581	511	496	-2.9
Arable and horticulture	5283	5024	5067	4608	-9.1
Improved grassland	5903	4619	4251	4494	5.7
Neutral grassland	467	1669	2007	2176	8.4
Calcareous grassland	75	78	61	57	-6.6
Acid grassland	1476	1821	1503	1589	5.7
Bracken	439	272	315	260	-17.5
Dwarf shrub heath	1388	1436	1299	1343	3.4
Fen, Marsh, Swamp	428	427	426	392	-8.0
Bog	2303	2050	2222	2232	0.5
Standing open waters ¹	284	200	196	204	4.1
Rivers and streams ¹	70	70	65	58	-10.8
Montane	41	n/a	41	42	2.4
Inland rock	38	76	111	84	-24.3
Built-up areas and gardens	1268	1266	1279	1323	3.4
Other land	n/a	57	107	113	n/a
Unsurveyed land ²	n/a	522	522	522	n/a
Total³	22514	22632	22601	22627	

⁸⁸ <http://www.statistics.gov.uk/STATBASE/Expodata/Spreadsheets/D5325.xls> (accessed 22.10.2009)

It is not known whether the decrease in arable and increase in improved grassland is likely to continue at the same rate in the future although it does seem likely that the extent of built up areas will continue to increase as some development will inevitably take place on greenfield land.

The area land occupied by agricultural holdings and the area in actual use for agriculture has changed very little across the UK in the past 25 years. The total area of land in agricultural holdings in the UK fell on average by about 15,400ha per annum between 1983 and 2008. This was equivalent to a rate of 0.09% per annum, or about 1% per decade, although over the latter 10 years of that period the reduction in land area was minimal⁸⁹.

The clearest trend in land use change in the UK over the past quarter of a century has been the conversion of land from agriculture to forestry and woodland. Forestry Commission estimates of the area of forest and woodland cover in the UK imply an average annual net increase of 25,000ha since 1980, equivalent to 1.05% per year. There seems to have been some reduction in the rate of growth from 2000 to 2008 with the net increase in tree cover in this period being about 7,000ha per annum (or 0.24%). These recent patterns of woodland expansion continue a very clear upwards trend, which has led to a doubling of the area of UK woodland since World War II.

New planting has predominantly responded to subsidy and has involved the expansion of small broadleaved woodlands within agricultural holdings. The average annual increase in woodland on farms (14,500ha per annum) accounts for more than half of the net increase in the wooded area as a whole. The area of woodland within agricultural holdings has thus more than doubled since the early 1980s.

In 2008, there was an estimated 63,750ha of previously-developed land in England, up from 2.6% from 62,130ha in 2007. An estimated 32,400ha of previously-developed land was vacant or derelict, 51% of the total. The remaining 31,350ha was in use but with potential for redevelopment⁹⁰. The conversion of previously undeveloped land accounted for about 5,000ha per annum between 2000 and 2006. This is equivalent to 0.04% of England's land area, and about one-third of the average annual flow of 15,700ha estimated for the period 1945-1975. Of all greenfield land developed between 2000 and 2006, roughly 57% was for residential uses, with 20% being for industrial, commercial and related activities, and the remaining 23% for other developed uses, predominantly transport.

England - Soils and Geology

The Natural Environment White Paper (2011) established an ambition that by 2030 all of England's soils will be managed sustainably and degradation threats tackled successfully, in order to improve the quality of soils and to safeguard their ability to provide essential ecosystem services and functions for future generations.

⁸⁹ Foresight Land Use Futures Project (2010). Final Report.

⁹⁰ Previously Developed Land that may be Available for Development: Results from the 2008 National Land Use Database of Previously-Developed Land in England, Homes and Communities Agency, February 2010, <http://www.homesandcommunities.co.uk/nlud-pdl-results-and-analysis.htm>

England - Land Use

In 2008, there was an estimated 63,750ha of previously-developed land in England, up from 2.6% from 62,130ha in 2007. This reversed a trend that occurred in the previous five years, where the total amount of previously-developed land in England declined by 6%. Between 2002 and 2007, the amount of vacant and derelict land declined by 17.5% while land currently in use with potential for redevelopment increased by 12%⁹¹.

There have also been changes in the changes to land use related to broad habitat types. Between 1998 and 2007 in England there was a significant increase in the area of Broadleaved Woodland (5.8%), Neutral Grassland (12.6%), Dwarf Shrub Heath (15.1%) and Standing Open Water and Canals (5.3%⁶). The increase in the area of Dwarf Shrub Heath between 1998 and 2007 followed a decrease in area between 1990 and 1998. The increase in the area of Standing Open Water and Canals⁶ recorded in England between 1998 and 2007 continued the increases recorded by Countryside Survey since 1990⁹².

On the other hand, there was a significant decrease in the area of Arable and Horticulture Broad Habitat (8.8%) in England across the same period. No statistical change in extent was detected in the Coniferous Woodland, Improved Grassland, Bracken, Bog, Fen, Marsh and Swamp and Calcareous Grassland Broad Habitats in England between 1998 and 2007.

4.5.2 East Midlands

Although minor positive cumulative effects on the use of previously developed land may arise from the implementation of the Plan, significant negative cumulative effects may potentially occur to avoiding loss or damage to BMV land. Development is planned in a large number of areas that contain mineral reserves, and in close proximity to BMV land, where it may encroach on such land and lead to losses. However, this issue will be dealt with through the Mineral LDF process and also if development does not directly conflict with mineral sites this could be positive as building materials will have less distance to travel.

The overall scale of development, across large parts of the Region, will be significant, and will noticeably affect the character of many locations, depending upon the extent to which development will take place within existing built-up areas, or on greenfield sites, and also on the amount of infrastructure built, employment land developed, community facilities provided, traffic generated, and environmental improvements achieved. Nearly three-quarters of all new dwellings are to be provided within the Three Cities and Southern Sub-Areas, with around 40% to be provided within the Three Cities Sub-Area and around 25% to be provided in the Southern Sub-Area. Other areas are also likely to see a significant scale of increase in dwelling provision include a number of districts in the vicinity of the cities of Nottingham, Leicester and Derby.

⁹¹ Communities and Local Government 2008

⁹² Countryside Survey for England (2007)

<http://www.countryside-survey.org.uk/sites/default/files/pdfs/reports2007/england2007/CS-England-Results2007-Chapter02.pdf>

4.6 **Assessment of Significant Effects of Retention, Revocation and Partial Revocation**

Despite there being many minor positive and some minor negative effects associated with the East Midlands Regional Plan policies, both for retention and revocation, there were judged to be no significant effects. This reflects the difficulty of assessing the impact of policies which interact with one another, particularly over the longer term and the way in which different combinations of policies could affect the land and soil topic. Much depends on the site-specific character of the proposed development and more generally the proposed balance between greenfield and brownfield land-take.

4.6.1 **Effects of Revocation**

The main adverse impacts on soil are a result of development. Assuming the level of growth in the region is the same as if the regional strategy is revoked it is possible in some areas that there will be less development on brownfield land and more on greenfield sites. Policies in the NPPF seek to protect best and most versatile land (i.e. ALC Grades 1-3a), but given the very high percentage of agricultural land which is classified as best and most versatile in the region it is likely that some will be affected, but precisely how much, in what locations and the significance of any loss has to be judged a local scale where BMV loss will be considered against a range of other factors.

4.7 **Mitigation Measures**

There are no mitigating measures proposed for this topic given that there are no significant effects likely.

5. Water Quality and Resources

5.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the regional strategy on water quality and resources. Information is presented for both national and regional levels.

Water quality and resources within this context are defined as inland surface freshwater and groundwater resources, and inland surface freshwater, groundwater, estuarine, coastal and marine water quality.

There are links between the water quality and resources topic and a number of other SEA topics, in particular the effects and interactions of water quality and resources on biodiversity, population and human health.

5.2 Summary of Plans and Programmes

5.2.1 International

The **Water Framework Directive** (WFD) is the most substantial piece of EC water legislation to date and replaces a number of existing Directives including the Surface Water Abstraction Directive. It establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater and is designed to improve and integrate the way water bodies are managed, including encouraging the sustainable use of water resources. The key objectives at European level are general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water.

In accordance with Article 4(1), the Directive objectives for surface water, groundwater, transitional and coastal water bodies are to:

- prevent deterioration;
- reduce pollution;
- protect, enhance and restore condition;
- achieve 'good status' by 2015, or an alternative objective where allowed; and
- comply with requirements for protected areas .

The WFD adopts the 'polluters pays principle' in seeking to ensure that the costs and benefits of discharging pollutants to the water environment are appropriately valued, and that implementation of the Directive is achieved in a fair and proportionate way across all sectors.

The aim of the **Marine Strategy Framework Directive (2008)** is to protect more effectively the marine environment across Europe. It aims to achieve good environmental status of the EU's marine waters by 2021 and to protect the resource base upon which marine-related economic and social activities depend.

With specific regard to coastal water quality, the **Bathing Waters Directive (2006/7/EC)** sets standards for the quality of bathing waters in terms of:

- the physical, chemical and microbiological parameters;
- the mandatory limit values and indicative values for such parameters; and
- the minimum sampling frequency and method of analysis or inspection of such water.

The **Floods Directive (2007/60/EC)** aims to provide a consistent approach to managing flood risk across Europe. The approach is based on a 6 year cycle of planning which includes the publication of Preliminary Flood Risk Assessments, hazard and risk maps and flood risk management plans. The Directive is transposed into English law by the Flood Risk Regulations 2009.

The **Urban Waste Water Treatment Directive (91/271/EEC)** has the objective of protecting the environment from the adverse effects of untreated 'urban waste water' ('sewage'). The directive establishes minimum requirements for the treatment of significant sewage discharges. An important aspect of the directive is the protection of the water environment from nutrients, (specifically compounds of nitrogen and phosphorus), and/or nitrates present in waste water where these substances have adverse impacts on the ecology of the water environment or abstraction source waters. It was transposed into English law through the Urban Waste Water Treatment (England and Wales) Regulations 1994 (as amended).

In addition, the following European Directives have relevance to the protection of the water environment and resources:

- Dangerous Substances Directive (76/464/EEC);
- Quality of Shellfish Waters Directive (79/923/EEC);
- Directive on Priority Substances (2008/105/EC);
- Groundwater Directive (80 /68/EEC);
- Waste Framework Directive (2008/98/EC);
- Industrial Emissions Directive ((2010/75/EU); and

- Drinking Water Directive (98/83/EC).

5.2.2 National

UK

The ***Flood and Water Management Act (2010)*** makes provisions about water, including those related to water resources, including;

- To widen the list of uses of water that water companies can control during periods of water shortage, and enable Government to add to and remove uses from the list.
- To encourage the uptake of sustainable drainage systems by removing the automatic right to connect to sewers and providing for unitary and county councils to adopt SUDS for new developments and redevelopments.
- To reduce 'bad debt' in the water industry by amending the Water Industry Act 1991 to provide a named customer and clarify who is responsible for paying the water bill.
- To make it easier for water and sewerage companies to develop and implement social tariffs where companies consider there is a good cause to do so, and in light of guidance that will be issued by the Secretary of State following a full public consultation.

The ***Marine and Coastal Access Act (2009)*** sets out a number of measures including the establishment of Marine Conservation Zones (MCZs) and Marine Spatial Plans. The main objectives of the ***Marine Policy Statement (2011)*** are to enable an appropriate and consistent approach to marine planning across UK waters, and to ensure the sustainable use of marine resources and strategic management of marine activities from renewable energy to nature conservation, fishing, recreation and tourism.

England

In England, the implementation work related to the Water Framework Directive is undertaken by the Environment Agency, working in partnership with key partners. For these reason the majority of data and programmes regarding Water Quality and Resources cover both administrations and therefore England and Wales are considered collectively in this chapter.

There are 11 River Basin Districts in England and Wales which each require (under the Water Framework Directive) a ***River Basin Management Plan (RBMP)*** including objectives for surface water, groundwater, transitional and coastal water bodies.

The Government's 2011 White Paper '***Water for Life***' sets out the Government's vision for future water management in which the water sector is resilient and which water is valued as a precious resource. The key reforms set out in the White Paper are:

- the introduction of a reformed water abstraction regime, as signaled in the Natural Environment White Paper changes to deal with the legacy of over-abstraction of our rivers;
- a new catchment approach to dealing with water quality and wider environmental issues;
- with the Environment Agency and Ofwat provide clearer guidance to water companies on planning for the long-term, and keeping demand down;
- consultation on the introduction of national standards and a new planning approval system for sustainable drainage; and
- collaboration with water companies, regulators and customers to raise awareness of the connection between how we use water and the quality of our rivers.

Water for people and the environment - Water resources strategy for England and Wales (2009)

published by Environment Agency, includes the following objectives:

- enable habitats and species to adapt better to climate change;
- allow protection for the water environment to adjust flexibly to a changing climate;
- reduce pressure on the environment caused by water taken for human use;
- encourage options resilient to climate change to be chosen in the face of uncertainty;
- better protect vital water supply infrastructure;
- reduce greenhouse gas emissions from people using water, considering the whole life-cycle of use; and
- improve understanding of the risks and uncertainties of climate change.

Other relevant strategies include the Environment Agency's ***Catchment Abstraction Management Strategies*** (CAMS) which have identified a number of catchments in England and Wales which are designated as Over-Licensed or Over-Abstracted. That is, the current level of licensed abstraction could result in an unacceptable stress on the catchment's ecology (designated over-licensed) or possibly is resulting in an unacceptable effect (designated over-abstracted).

National Policy Statements (2011 and 2012) brings together national government policy for nationally significant infrastructure projects (NSIPs) for energy, wastewater and ports infrastructure. The National Policy Statements set out the policy framework for decisions on major infrastructure projects that meet the NSIPs thresholds established in the Planning Act 2008.

The ***National Planning Policy Framework (NPPF) (2012)*** expects the planning system to contribute to conserving and enhancing the natural environment and reducing pollution, and take full account of flood

risk. In particular, the planning system is expected to prevent new development from contributing to unacceptable levels of water pollution.

- Local planning authorities are expected to set out the strategic priorities for their area in the Local Plan including strategic policies to deliver the provision of infrastructure for water supply, wastewater, flood risk and coastal change management. In preparing the evidence base for their Local Plans, they are expected to work with other authorities and providers to assess the quality and capacity of the existing infrastructure and its ability to meet forecast demands. Public bodies have a duty to co-operate on planning issues that cross administrative boundaries particularly those which relate to strategic priorities.
- The Framework expects inappropriate development in areas of flood risk to be avoided and sets out how this should be achieved through the preparation of Local Plans and in determining planning applications. Supporting technical guidance has been provided to ensure the effective implementation of the policy.
- Local plans are expected to take account of climate change over the longer term including factors such as flood risk, coastal change and water supply. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change.

5.2.3 East Midlands

The Environment Agency is developing **Catchment Abstraction Management Strategies (CAMS)** which consider how much water can be abstracted from watercourses and groundwater without damaging the environment within a catchment - the most appropriate scale for planning for water. They recognise the needs of abstractors whilst also reflecting the requirements of the Water Framework Directive.

The water companies are required by provisions in the Water Resources Management Plan Regulations 2007 to prepare **Water Resources Management Plans** to address the challenges to water supplies from growth, climate change and environmental legislation. They are also required to prepare **Drought Management Plans**. These set out how they will maintain the water supply during periods of low rainfall when supply becomes depleted.

The Environment Agency also produces and monitors the delivery of action arising from **Catchment Flood Management Plans** (CFMPs) which give an overview of the flood risk across each river catchment. They recommend ways of managing those risks now and over the next 50-100 years. There are two principal CFMPs covering the East Midlands: River Trent; Grimsby & Ancholme; Louth Coastal; River Witham; River Welland. They consider all types of inland flooding, from rivers, ground water, surface water and tidal flooding, but not flooding directly from the sea, (coastal flooding), which is covered in Shoreline Management Plans.

Shoreline Management Plans (SMPs) are produced by a partnership of organisations (including relevant local authorities, Natural England, English Heritage and Internal Drainage Boards) led by the

Environment Agency. They are large-scale assessments of the risks associated with coastal processes. They seek to reduce these risks to people and the developed, historic and natural environments. Relevant plans for the East Midlands are: Flamborough Head to Gibraltar Point SMP and The Wash SMP.

5.3 Overview of the Baseline

5.3.1 National

UK

The UK has a diversity of inland and coastal waters (such as reservoirs, lakes, rivers, canals, estuaries, transitional waters, and coastal waters). Protected water features include waters designated for human consumption (including those abstracted from groundwater); areas designated for the protection of economically significant aquatic species (e.g. shellfish or freshwater fish); bathing waters (under the Bathing Waters Directive); nutrient-sensitive areas; and areas with waters important to protected habitats or species under the Habitats Directive or the Birds Directive.

There are 182 protected areas in UK inshore waters with a marine element, which includes 81 Special Protection Areas (SPAs) with marine habitats for birds, 98 Special Areas of Conservation (SACs) with marine habitats or species and three Marine Nature Reserves. In total the area coverage of these sites exceeds 1.8 million hectares, or 2.2% of UK waters.⁹³

The principal aquifers of the UK are located in the lowlands of England. The most important are the Chalk, Permo-Triassic sandstones, the Jurassic limestones and the Lower Greensand. Around 81% of groundwater bodies in England are at risk of failing Water Framework Directive objectives because of diffuse pollution.

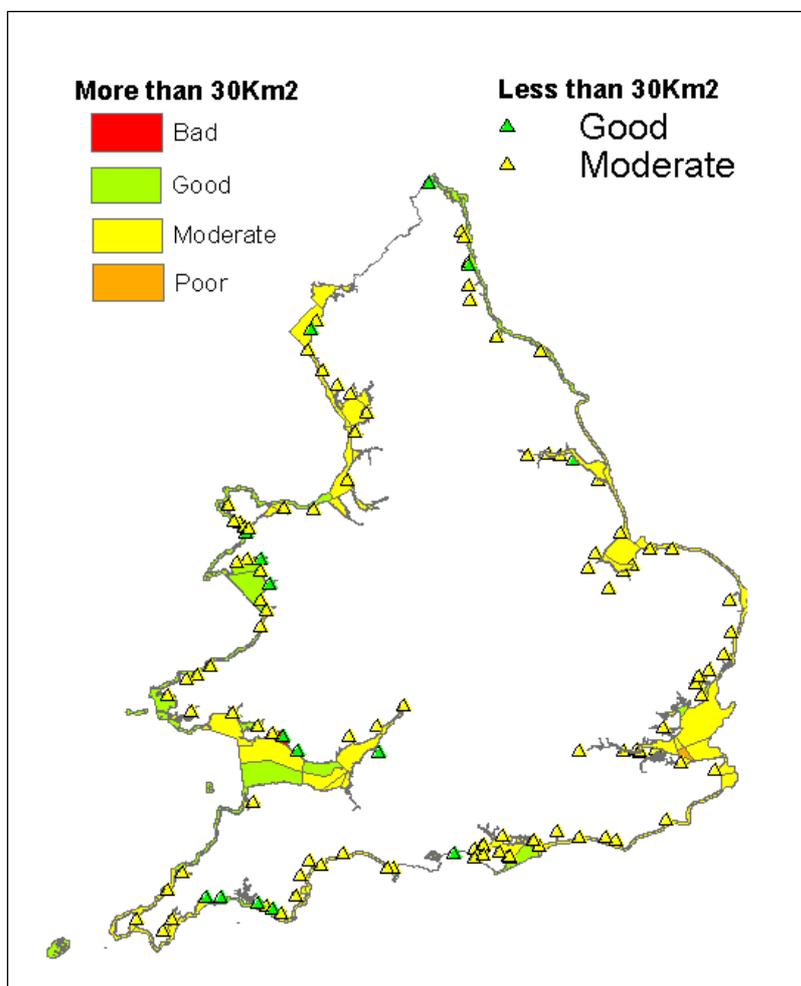
As the majority of data regarding water resources and quality is collected by the Environment Agency (covering both England and Wales), Scottish Environment Protection Agency and Northern Ireland's Department of Ireland, there is little available data on a UK level and therefore for this chapter the remainder of the baseline is considered by these divisions of administrations.

England

Coastal water quality has improved over the last two decades, however current WFD draft classification results and maps produced by the Environment Agency indicate that there are still a large proportion of coastal waters in England (and Wales) that are classified as being of Moderate Ecological Status (see **Figure 5.1**) i.e. are failing to meet 'Good Ecological Status' (GES) on the basis of a number of physio-chemical and biological standards and are therefore in need of measures to achieve GES.

⁹³ <http://www.defra.gov.uk/foodfarm/fisheries/documents/mpp2009-10info.pdf>

Figure 5.1 Ecological Status/Potential of Estuaries and Coasts in England and Wales



Source: *Framework Directive results and maps* available at <http://www.environment-agency.gov.uk/research/library/data/97343.aspx> (accessed 21/10/2009)

River water quality in England has been steadily increasing since 1990 and in 2009, 73% of rivers were of good biological quality. Between 2006 and 2007, the percentage of rivers of ‘good’ chemical quality rose from 74% to 76% (based on the General Quality Assessment system⁹⁴ which is based on 3 determinands - dissolved oxygen, biochemical oxygen demand and ammoniacal nitrogen). In 2009 this rose to 80 per cent. High levels of phosphorus can result in increased algal growth in freshwater and high levels of nitrate are of concern in relation to drinking water abstractions. Rivers with the highest concentrations of phosphate and nitrate are mainly in central and eastern England reflecting geology, agricultural inputs and higher population density.

The consumption of water abstracted from non-tidal surface and groundwater in England and Wales has fallen from an estimated 41.2 thousand megalitres/day in 2000 to 33.6 thousand megalitres/day in 2009.

⁹⁴ The GQA system is being superseded by the Water Framework Directive regime, however the transition is on-going.

5.3.2 East Midlands

In addition to 105km of North Sea Coastline and the tidal reaches of the Lower Trent, Nene and Welland, the East Midlands includes much of the River Trent catchment, which includes two of the river's major tributaries, the Derwent and Soar. Additionally, the Rivers Nene, Welland and Witham catchments lie almost entirely within the East Midlands region. The region also contains the headwaters of the River Rother. Approximately 17% of the region's land area is at risk of flooding. This affects over 350,000 people in 143,000 homes and a significant number of businesses. Although the standard of flood defences in the region is generally high, these defences do not reach the desired standards in every location in the Region. Parts of the East Midlands are among the driest in England with annual rainfall totals in places less than 600mm on average. Surface water throughout the majority of the East Midlands is already fully committed to existing abstractions so no significant additional resource is reliably available - with the possible exception of the River Trent and the River Soar. The largest use of water is for public supply. Public supply use is broken down into household use (53%), non-household use (27%) and leakage (20%). Industries and farmers both abstract, although farmers abstract for spray irrigation, mainly in summer months when the river flows are at their lowest and very little irrigation water is returned, so its potential impact on the water environment is heightened.

Water supplies in the East Midlands come from a range of sources including large reservoirs, rivers, boreholes and wells from underground reserves in aquifers. Abstraction from some aquifers has depleted available supplies, leading to low groundwater levels and adverse effects on associated habitats. To the northeast of the region, the licensed surface or groundwater abstractions exceed the sustainable limit, potentially affecting rivers and wetlands. Severn Trent Water estimates that climate change could result in a further reduction of water yields of the River Trent and the Derwent valley reservoir system. The East Midlands population is estimated to grow by about 400,000 by 2025, though while individually the additional households should be more water-efficient, they are likely to increase total demand for water. Taking the projected population growth and use together, increases of up to 40% in household demand could occur by 2025. However, if sustainable water use patterns prevail, demand could fall by as much as 20%. Intensive agricultural practices are widespread in the region and have damaged water quality in some rivers and aquifers. Key facts relating to the state of the water environment in the East Midlands are⁹⁵:

- The average annual rainfall in the East Midlands is less than 700mm per year, compared to the England and Wales average of around 900mm.
- Domestic water consumption is around 135 litres per person per day.
- Other water body types include lakes, groundwater, coastal and transitional. 28 per cent of lakes and 71 per cent of groundwater sources also reached good status in 2009. No coastal or

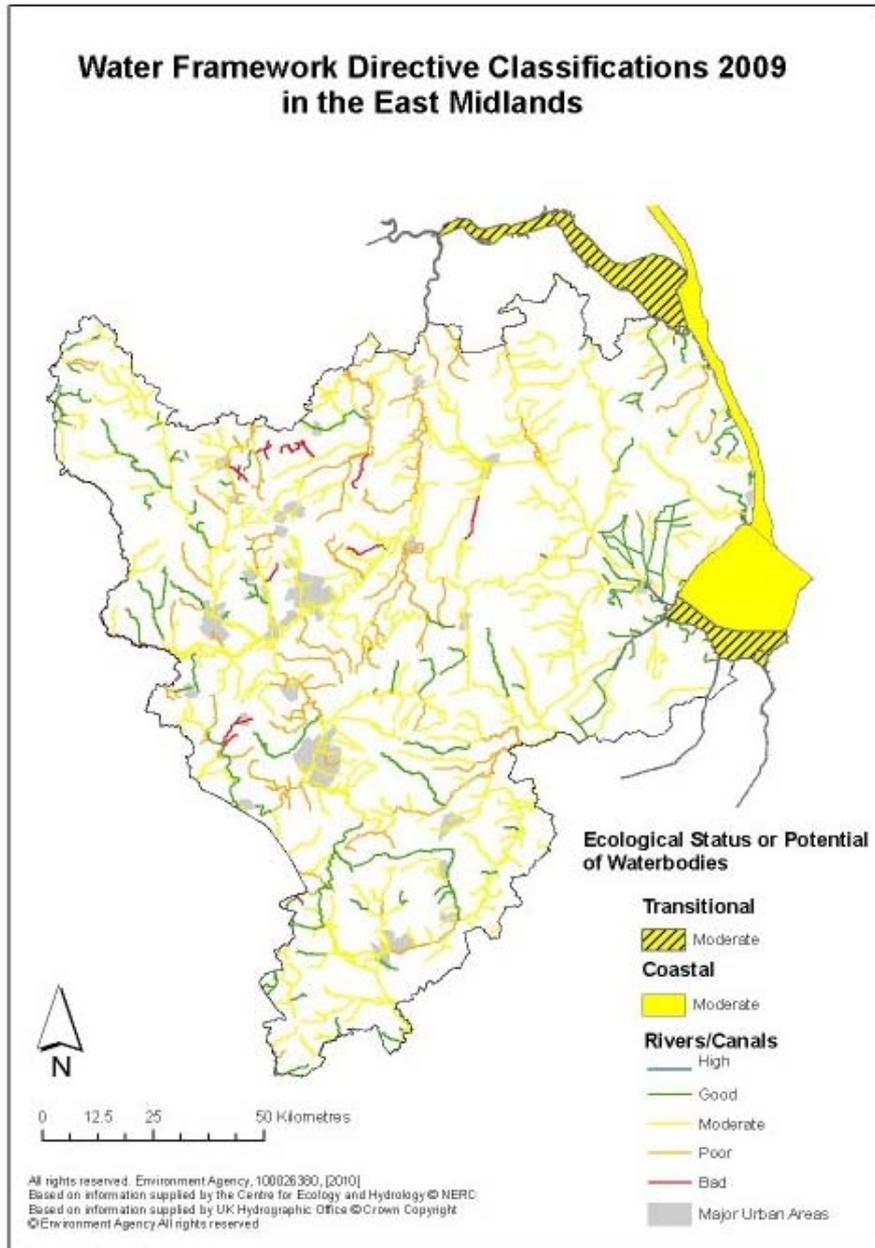
⁹⁵ Environment Agency (2010) State of the Environment: East Midlands at: http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Water.pdf

transitional water bodies met the standards.

- In 2008, all seven of the East Midlands Bathing Water sites complied with mandatory European standards. They all also achieved the tougher guideline standards.
- There were 49 water pollution incidents categorised as major or significant in 2009.
- Approximately 40 per cent of the region is underlain by useable aquifers, including Sherwood Sandstones, Lower and Upper Magnesian Limestone, Carboniferous Limestone, Lincolnshire Chalk and Spilsby Sandstone

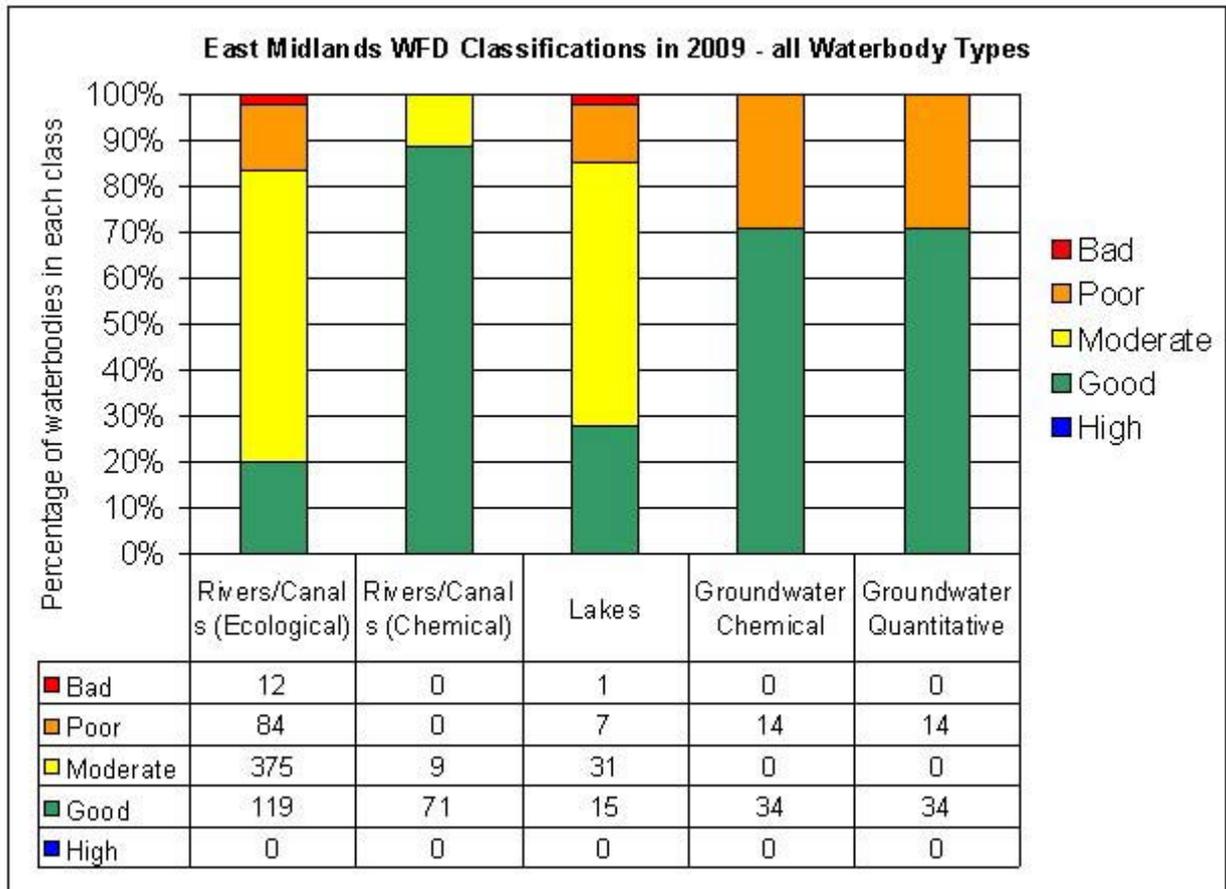
Over 5,500km of watercourse is monitored by the Environment Agency under the Water Framework Directive. Their current classifications are shown in **Figures 5.2 and 5.3** (and are assessed on factors such as dissolved oxygen, phosphate, fish, diatoms and invertebrates. Only 20% of river and canal water bodies, 28% of lakes and 71% of groundwater sources meet “good” ecological status. No coastal or transitional water bodies met this standard. In contrast, though, only 12 river and canal bodies and 1 lake were classified as “bad” ecological status under the Directive. By 2027 all water bodies are required to reach at least “good” status.

Figure 5.2 Water Quality in the East Midlands⁹⁶



⁹⁶ Environment Agency (2010) State of the Environment: East Midlands at: http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Water.pdf

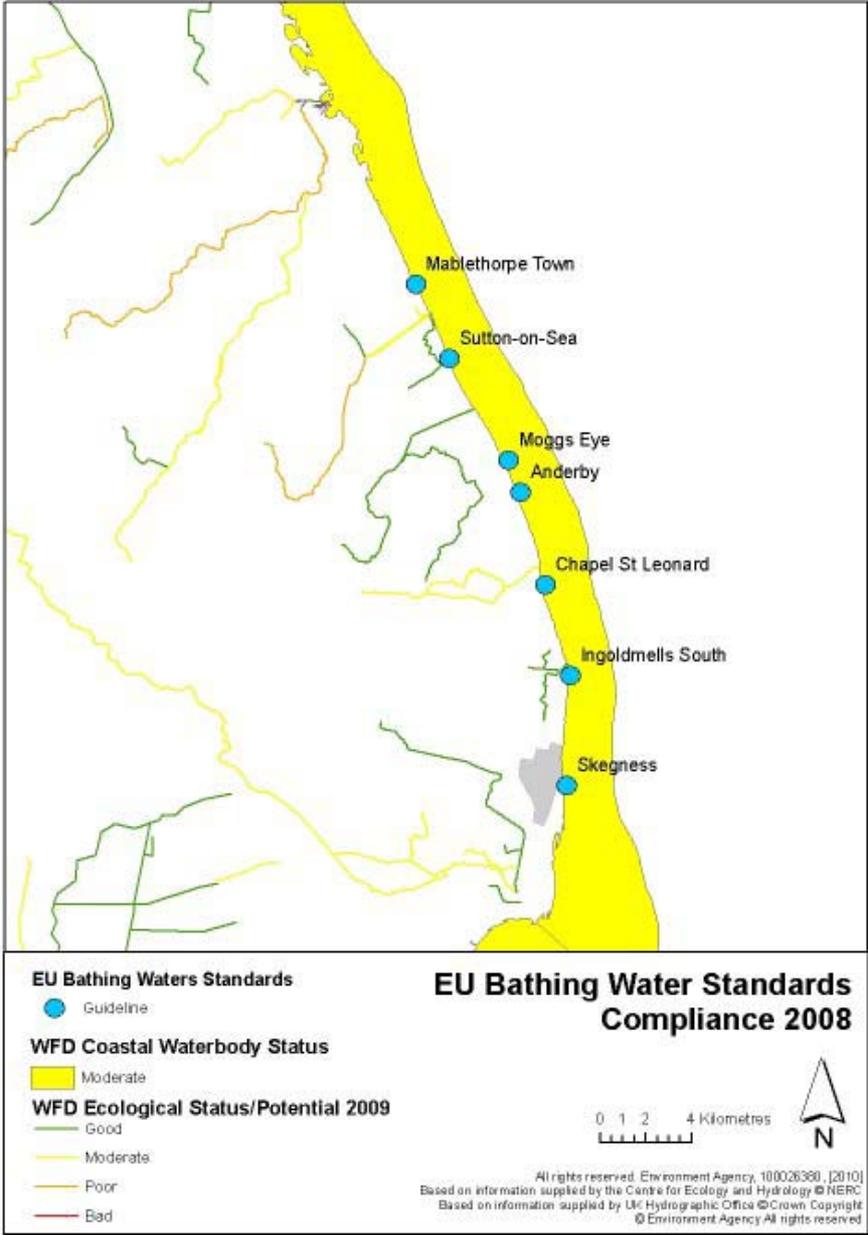
Figure 5.3 Classification by type of water body⁹⁷



The East Midlands has some of the best quality beaches in England and Wales. All seven testing sites met bathing water standards in 2008 (**Figure 5.4**).

⁹⁷ Environment Agency (2010) State of the Environment: East Midlands at: http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Water.pdf

Figure 5.4 Bathing Water Compliance Standards⁹⁸

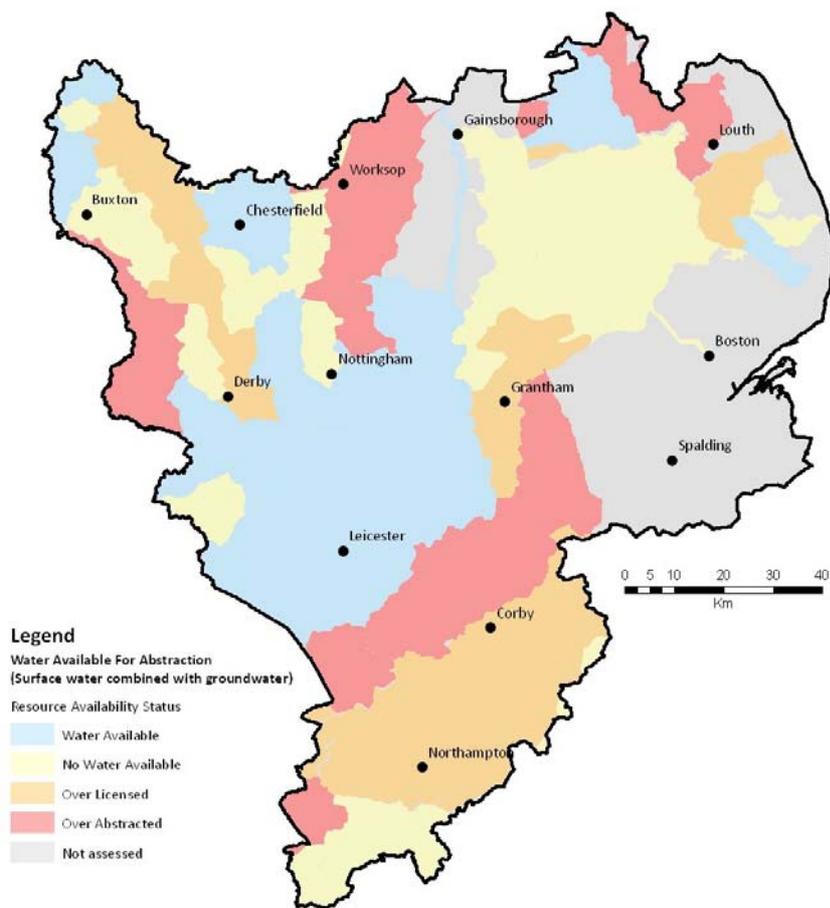


Over abstraction of water is a significant issue in the region (Figure 5.5). Water resources are heavily utilized across the region with many areas having no water available for abstraction without causing

⁹⁸ Environment Agency (2010) State of the Environment: East Midlands at: http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Water.pdf

environmental damage. Significant portions of the region already suffer from over abstraction or over licensing problems. The main areas where water is still available for abstraction lie in the centre of the region between Leicester and Nottingham. Predicted increases in population for these areas by 2030 will increase pressure on water resources and may change the water available status⁹⁹.

Figure 5.5 Water Availability for Abstraction in the East Midlands¹⁰⁰



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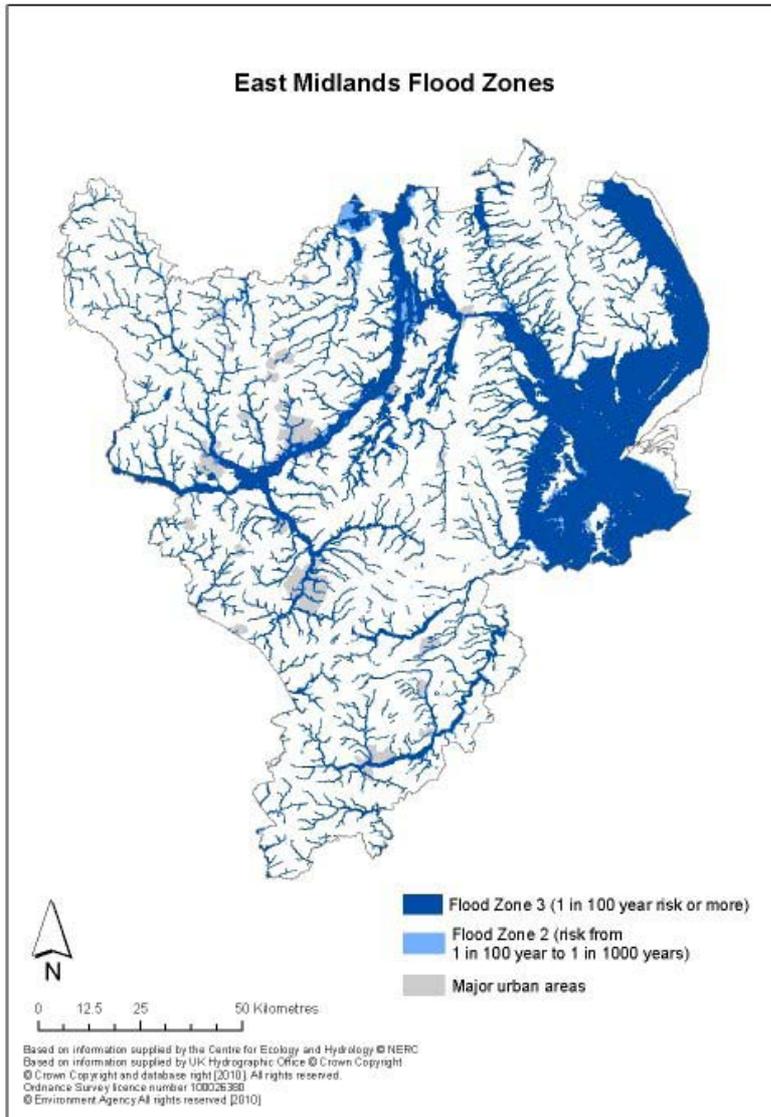
The region has the greatest area at risk of flooding, with large areas along the Lincolnshire coastline and within river valleys at or below sea level. It is estimated that, in 2008, around 17.5% of all land has a high or moderate flood risk. This covered 295,000 properties (12% of the region), of which nearly 200,000 were residential properties. Up to 75,000 residential dwellings are of significant risk of flooding. An

⁹⁹ Environment Agency (2010) State of the Environment: East Midlands at: http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Water.pdf

¹⁰⁰ Environment Agency (2010) State of the Environment: East Midlands at: http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Water.pdf

additional 45,000 homes would be at significant risk as a result of a rise in sea levels arising from the impact of climate change in the region. **Figure 5.6** shows the floodrisk across the region.

Figure 5.6 East Midlands Flood Zones



The Environment Agency has completed 77 Catchment Flood Management Plans (CFMPs) for England and Wales. The catchments do not accord with regional boundaries, but the following CFMPs are relevant: River Trent; Grimsby & Ancholme; Louth Coastal; River Witham; River Welland. The policy approaches for managing flood risk at a catchment level are as follows¹⁰¹:

¹⁰¹ <http://www.environment-agency.gov.uk/research/planning/33586.aspx>

Policy 1: Areas of little or no flood risk where we will continue to monitor and advise.

This policy will tend to be applied in those areas where there are very few properties at risk of flooding. It reflects a commitment to work with the natural flood processes as far as possible.

Policy 2: Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions

This policy will tend to be applied where the overall level of risk to people and property is low to moderate. It may no longer be value for money to focus on continuing current levels of maintenance of existing defences if we can use resources to reduce risk where there are more people at higher risk. We would therefore review the flood risk management actions being taken so that they are proportionate to the level of risk.

Policy 3: Areas of low to moderate flood risk where we are generally managing existing flood risk effectively

This policy will tend to be applied where the risks are currently appropriately managed and where the risk of flooding is not expected to increase significantly in the future. However, we keep our approach under review, looking for improvements and responding to new challenges or information as they emerge. We may review our approach to managing flood defences and other flood risk management actions, to ensure that we are managing efficiently and taking the best approach to managing flood risk in the longer term.

Policy 4: Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change

This policy will tend to be applied where the risks are currently deemed to be appropriately-managed, but where the risk of flooding is expected to significantly rise in the future. In this case we would need to do more in the future to contain what would otherwise be increasing risk. Taking further action to reduce risk will require further appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

Policy 5: Areas of moderate to high flood risk where we can generally take further action to reduce flood risk

This policy will tend to be applied to those areas where the case for further action to reduce flood risk is most compelling, for example where there are many people at high risk, or where changes in the environment have already increased risk. Taking further action to reduce risk will require additional appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

Policy 6: Areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits

This policy will tend to be applied where there may be opportunities in some locations to reduce flood risk locally or more widely in a catchment by storing water or managing run-off. The policy has been applied to an area (where the potential to apply the policy exists), but would only be implemented in specific locations within the area, after more detailed appraisal and consultation.

In terms of planning permissions granted contrary to Environment Agency advice on flood risk grounds, the number of objections has increased since 2006/07 when there were a total of 188 objections on flood risk grounds in the East Midlands, with a total of 902 objections raised in 2009/10.¹⁰² (Table 5.1)

Table 5.1 Planning Applications Objected to by the Environment Agency on Flood Risk Grounds between 1/4/2009 and 31/3/2010, East Midlands Summary

Local Planning Authority	Minor Development	Major Development	Total Objections
Derby	17	10	27
Derbyshire	95	35	130
Leicester	18	16	34

¹⁰² East Midlands Authorities (2011) The East Midlands in 2009/10

Leicestershire	63	62	125
Lincolnshire	170	105	275
Northamptonshire (inc. JPU)	42	104	146
Nottingham	19	7	26
Nottinghamshire	94	34	128
Peak District	7	2	9
Rutland	1	1	2
East Midlands Total	526	376	902

5.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

5.4.1 National

In some urban areas in England there is relatively little water available per rata, and abstraction is above its sustainable level. The Environment Agency have derived assessments on availability of water resources for new abstraction based on Catchment Abstraction Management Strategy (CAMS) assessments and large areas of England, most notably in the South East, have been identified as areas where water for new abstractions will be limited to winter months when flows are high.¹⁰³

This issue is likely to continue in the future based on projections on the future rainfall and demand has lead to the classification of all south-eastern areas as seriously water stressed. The remainder of the UK is classified as either having low or moderate water stress.

Recently published River Basin Management Plans (which have been established in accordance with the Water Framework Directive) have designated a number of freshwater (surface and groundwater), transitional (estuaries) and coastal water bodies in England as failing to meet “*Good Ecological Status*” (GES) on the basis of a number of physio-chemical and biological standards. Flows in rivers and freshwater inputs to transitional waters are considered to be a ‘supporting element’ in the achievement of GES.

In Southern and Eastern regions of England, where rainfall is comparatively low, per capita water consumption tends to be higher than elsewhere. In some areas, abstraction is above its sustainable level and this combined with projections for rainfall and demand has lead to the classification of all south-eastern areas as seriously water stressed.

¹⁰³ <http://sd.defra.gov.uk/2010/07/measuring-progress-sustainable-development-indicators-2010/>

5.4.2 East Midlands

- **Water shortages:** The key issue regarding water resources in the East Midlands is water quantity. Relatively low rainfall levels in the East Midlands could create a significant shortfall in terms of supply and demand and population increases may place further pressure on the resources.
- **Climate change:** Severn Trent Water estimate that climate change could result in a further reduction of yields of the River Trent and the Derwent valley system.
- **Inter-regional discrepancies:** Parts of the East Midlands are among the driest in the country and there are limited natural and artificial facilities to store water in the region. Other regions may be less under pressure.
- **Water quality:** Intensive agricultural practices in the area have damaged the water quality in some of the inland waterways. Restraints on water supply could further endanger water quality.
- **Flood risk management.**

According to the 2008 HRA of the proposed changes of the East Midlands Regional Plan (Treweek Environmental Consultants), the following European designated sites were identified as being susceptible to over extraction of local ground water or surface water or water quality issues:

Sites at risk from further water abstraction

- Baston Fen SAC
- Rutland Water SPA/ Ramsar
- River Mease SAC
- Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC; Gibraltar Point SPA and Ramsar site
- The Wash SAC / SPA / Ramsar site
- Nene Washes SAC / SPA / Ramsar site
- Nene Valley Gravel Pits pSPA and pRamsar site
- Humber Estuary cSAC / SPA / Ramsar site

Sites at risk from further decline in water quality

- Baston Fen SAC
- Humber Estuary cSAC, SPA, Ramsar site
- River Mease SAC
- Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC, Gibraltar Point SPA and Ramsar

- site
- Peak District Dales SAC
- The Wash and North Norfolk Coast SAC, The Wash SPA and Ramsar site
- Rutland Water SPA and Ramsar site
- Upper Nene Valley Gravel Pits pSPA and pRamsar site
- Nene Washes SAC, SPA and Ramsar site

5.5 Likely Evolution of the Baseline

5.5.1 National

UK

The current trend in water condition is generally towards increased water quality across natural environments, drinking water and bathing waters¹⁰⁴. Current climate change predictions indicate that rainfall patterns will become increasingly seasonal, with lower amounts of flow in the summer. This will lead to lower summer river flows, especially in those catchments with a low groundwater component. This could lead to increased abstraction pressure, increased stress on sensitive hydrological systems and a decrease in dilution potential leading to a failure against water quality targets. Increased flooding and storm events also have the potential to increase runoff of pollutants into controlled waters, thus reducing water quality. Population pressures are predicted to increase in certain parts of Great Britain, for example in the south-east. Increased population density will result in an increased pressure on natural resources and could exacerbate current problems or cause new ones.

The Marine and Coastal Access Act (2009) allows for the creation of Marine Conservation Zones (MCZs) in Great Britain (Northern Ireland MCZs will be introduced through separate legislation). MCZs will protect nationally important marine wildlife, habitats, geology and geomorphology. Sites will be selected to protect the range of marine wildlife¹⁰⁵. This should lead to greater protection and improvement of marine habitats in the future.

In 2011, all but 14 of the 597 coastal bathing waters in the UK met the mandatory (basic) standards of the European Bathing Water Directive¹⁰⁶. Under the revised Bathing Water Directive all bathing waters will be required to achieve at least 'sufficient' quality by 2015, which is twice as stringent as the current

¹⁰⁴ Defra, Sustainable Development Indicators, 2009, http://www.defra.gov.uk/sustainable/government/progress/documents/SDIYP2009_a9.pdf

¹⁰⁵ Natural England. <http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/mcz/default.aspx>

¹⁰⁶ Defra, Environmental Statistics – Key Facts Dec 2011

mandatory standard. The overall quality of bathing waters is therefore likely to increase as water quality is improved to meet the increased standards.¹⁰⁷

England

The Environment Agency's Catchment Abstraction Management Strategies (CAMS) have identified a number of catchments in England which are designated as Over-Licensed or Over-Abstracted. Climate change is likely to result in lower summer rainfalls and more frequent/severe winter flood events. Such changes are likely to increase pressure on summer freshwater water availability and increase pollutant runoff into controlled waters during flood events. Unsustainable groundwater and surface water abstraction may contribute to environmental damage of rivers and wetlands at 500 sites in England and Wales, important conservation sites, including sites of national and international conservation importance.

The Environment Agency aims that by 2030 water use per person in England should fall by 130 litres/day.¹⁰⁸

The Water Framework Directive (Directive 2000/60/EEC) requires that river basin management plans are prepared by December 2009. The objectives of the river basin management plans are required to be achieved by 2015.¹⁰⁸ Those objectives are to:

- prevent deterioration, enhance and restore bodies of surface water, achieve good chemical and ecological status of such water and reduce pollution from discharges and emissions of hazardous substances;
- protect, enhance and restore all bodies of groundwater, prevent the pollution and deterioration of groundwater, and ensure a balance between groundwater abstraction and replenishment; and
- preserve protected areas.

Defra aims that by 2030 at the latest, England has improved the quality of our water environment and the ecology which it supports, and continued to provide high levels of drinking water quality from its taps; sustainably manage risks from flooding and coastal erosion, with greater understanding and more effective management of surface water; ensure a sustainable use of water resources, and implement fair, affordable and cost reflective water charges; cut greenhouse gas emissions; and embed continuous adaptation to climate change and other pressures across the water industry and water users.¹⁰⁹

¹⁰⁷ Environment Agency <http://www.environment-agency.gov.uk/research/library/data/112170.aspx>

¹⁰⁸ EU http://europa.eu/legislation_summaries/agriculture/environment/l28002b_en.htm

¹⁰⁹ Future Water, the Government's Water Strategy for England

Environment Agency aims to enhance water supply by up to 1,100Ml/d above present levels by the improvement of existing schemes and the development of some new resources.¹¹⁰

There is a trend of improving quality of rivers within England; between 1990 and 2008 the percentage of rivers of good biological quality in England rose from 63 to 72%. Over the same time period the percentage of rivers of good chemical quality rose from 55 to 79%¹¹¹.

5.5.2 East Midlands

According to the Appropriate Assessment¹¹² carried out for the proposed changes to the EMRS: “The East Midlands are one of the driest regions of the UK, with less than 600mm annual average rainfall in some areas (Environment Agency Water Resources Strategy for the East Midlands: hereafter referred to as the EA WRS). Low summer rainfall occurs when the demand for water is also at its highest (see e.g. the Defra environmental overview of the East Midlands, EA WRS). Surface water is already almost fully committed to existing abstractions and maintaining environmental standards, with the exception of the River Trent and parts of the Soar. According to information contained in Catchment Abstraction Management Plans produced for the region, much of the licensed surface and groundwater abstraction is also already at or over the sustainable limit, so further water resources would need to be developed before further development could take place without adverse impacts on rivers and wetlands. Over-abstraction particularly affects the Nottingham and Lincoln areas, as well as coastal areas north of Skegness and the lowlands between Leicester and Boston. Augmentation for abstraction is potentially an increasing threat to some rivers (LWT Habitat Action Plan: Rivers, canals and drains). In cases where rivers are supplemented by water piped from other rivers to assure sufficient supply for licensed abstractions, there are possible conflicts with water chemistry affecting aquatic biota, although as yet there seems to be no evidence that this has affected European sites in the region. Climate change predictions suggest that warmer, drier summers are to be expected, placing further pressure on the extent and quality of supply (EA WRS), with implications for water quality. Whilst water quality is currently good over much of the region (Defra) at present, increased abstraction could have detrimental effects on water quality in future (see following section) and is already an issue for some European Sites in the region. The general trends are falling ground water levels and increasing abstraction and consumption in the region. Some 1,150 million litres/day are abstracted for public supply at present, of which c.50% goes for household use and a further 30% for non-household use. The average consumption of water in the East Midlands is between 130 and 150l/person/day; this does not include abstraction for agricultural and industrial purposes. Assuming an average water use of 136 l per person per day, the numbers of new houses proposed between 2006 and 2026 could lead to an extra 206,000m³ per day of water being required (conservative estimate based on a total number of houses proposed of 523,300 which is slightly below the final proposed number). This is a significant quantity, given the lack of scope for further abstraction in the region.”

¹¹⁰ EA, Water Resources for the Future: A Strategy for England and Wales

¹¹¹ Defra, Sustainable Development Indicators (2010) <http://sd.defra.gov.uk/2010/07/measuring-progress-sustainable-development-indicators-2010/>

¹¹² Treweek Environmental Consultants (2008) Appropriate Assessment of the East Midlands RSS Proposed Changes

5.6 **Assessing Significance**

Table 5.2 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the water quality and resources. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 5.2 Approach to Determining the Significance of Effects on Water Quality and Resources

Effect	Description	Illustrative Guidance
++	Significant positive	<ul style="list-style-type: none"> Alternative would have a significant and sustained positive impact on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species) Alternative would have a strong positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function). Alternative will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to such sites.
+	Positive	<ul style="list-style-type: none"> Alternative would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species). Alternative may have a positive net effect on local biodiversity (e.g. – through reduction in disturbance/pollutant emissions, or some habitat creation leading to temporary improvement to ecosystem structure and function). Alternative will enhance existing public access to areas of wildlife interest in areas where there is some demand for such sites.
0	No (neutral effects)	<ul style="list-style-type: none"> Alternative would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species). Alternative would not affect public right of way or access to areas of wildlife interest.
-	Negative	<ul style="list-style-type: none"> Alternative would have minor residual impact on European or national designated sites and/or protected sites (e.g. – prevents reaching one of the conservation objectives on site, short term decrease in population of designated species). These impacts could not be effectively avoided but could be effectively compensated for. Alternative would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through a minor increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function). Alternative will decrease public access to areas of wildlife interest in areas where there is some demand for such sites.
--	Significant negative	<ul style="list-style-type: none"> Alternative would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for. Alternative would have strong negative effects on local biodiversity (e.g. – through an minor increase in disturbance/pollutant emissions, or considerable loss of habitat leading to long term loss of ecosystem structure and function).
?	Uncertain	<ul style="list-style-type: none"> From the level of information available the impact that the Alternative would have on this objective is uncertain.

5.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 5.3 summarises the significant effects identified in the detailed assessment of the East Midlands Regional Plan policies against the water topic. Whilst many effects are record as minor negatives (notably in respect of the proposals for growth), there is also a significant amount of uncertainty attached to them, given their dependence of locally-specific conditions. Two policies were identified as yielding potentially significant positive effects over the longer term.

Table 5.3 Significant Effects against the Water Topic

Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
32. A Regional Approach to Water Resources and Quality	Revocation	+	+	++	This criteria-based policy seeks to develop a sustainable approach to water-use across the Region, such that proposed development can be supported, using a collaborative approach. Whilst the approach should lead to similar outcomes under revocation, arguably its effectiveness could be greater in the medium and longer term under retention as it would provide a clear reference point for activity.
	Retention	+	++	++	
35. A Regional Approach to Managing Flood Risk	Revocation	+	+	++	This criteria-based policy sets out the detail of where development should and should not be permitted using SFRA as guide. As such similar outcomes in terms of revocation and retention are expected as LPAs use these or similar criteria in their development management policies.
	Retention	+	+	++	

5.7.1 Effects of Revocation

The Flood and Water Management Act 2010 contains provisions for regional working and co-operation such as the establishment of regional flood and coastal committees and the bringing together of lead local flood authorities, who will have a duty to cooperate, to develop local strategies for managing local flood risk. In addition, the Flood Risk Regulations 2009 impose a duty on the Environment Agency and lead local flood authorities to take steps to identify and prepare for significant flood risk.

The NPPF (paragraph 100) seeks to avoid inappropriate development in areas at risk of flooding by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. Technical guidance on flood risk published alongside the NPPF sets out how this policy should be implemented. Local Plans should be supported by Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other relevant flood risk management bodies, such as lead

local flood authorities and internal drainage boards. Local Plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change. This includes applying a sequential test to steer new development to areas with the lowest probability of flooding.

When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment (NPPF paragraph 103). A site-specific flood risk assessment is required for proposals of 1 hectare or greater in Flood Zone 1; all proposals for new development (including minor development and change of use) in Flood Zones 2 and 3, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the Environment Agency); and where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding.

It is therefore concluded that removal of this policy will have no significant effects.

5.7.2 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies and retaining the non spatial policies; or
- Retention of policies, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on biodiversity associated with the revocation of the quantitative policies are summarised in **Table 5.3**. The identified effect concerns the substantial increase in consumer demand for water in an already water scarce region.

The assessment has found that there are no policies in the East Midlands Regional Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

5.7.3 Effects of Retention

Pressures on water supplies and water quality will continue in the absence of the Plan as the region already suffers a water deficit and water quality in many river catchments. While improving, water quality falls short of the standards required by the Water Framework Directive. Ultimately the effect will depend on the quantum of growth in the region, its broad location and actions required (mainly through the Water Framework and other Directives) to achieve greater water efficiency and improved water quality.

5.8 Mitigation Measures

Assuming that the level of growth in the region will be more or less the same irrespective of whether the Plan is revoked, the main mitigation measures to address limited water availability will continue in the short to medium term to be linked to demand management, for example, water metering in all new developments and retrofitting of existing buildings and continued improvements in the amount of water lost to leakage. Through the management of abstraction licences Environment Agency will be able to avoid over extraction and the environmental effects of this.

Improvements in water quality will continue to be driven by the requirements of the Water Framework Directive and other related Directives, for example, on Nitrates and Urban Waste Water.

6. Air Quality

6.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the regional strategies on air quality. Information is presented for both national and regional levels.

Air quality within this context concerns the levels of pollutants emitted into the air and their significance, in terms of the risk of adverse effects on the environment and/or human health. Carbon dioxide and other greenhouse gas emissions are excluded from the air quality topic and are reported under the climate change and adaptation topic.

There are links between the air quality topic and other topics in the SEA, specifically population, human health, climate change and material assets.

6.2 Summary of Plans and Programmes

6.2.1 International

The ***Air Quality Framework Directive*** (96/62/EC) and its Daughter Directives set a framework for monitoring and reporting levels of air pollutants across EU member states, setting limits or reductions for certain air pollutants.

The ***Ambient Air Quality and Cleaner Air for Europe Directive*** (2008/50/EC) consolidated earlier air quality directives and also defines and establishes objectives and targets for ambient air quality to avoid, prevent or reduce harmful effects on human health and the environment as a whole. It sets legally binding limits for concentrations in outdoor air of major air pollutants that impact on public health such as particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO₂). The 2008 directive replaced nearly all the previous EU air quality legislation and was made law in England through the ***Air Quality Standards Regulations 2010***, which also incorporates the 4th air quality daughter directive (2004/107/EC) that sets targets for levels in outdoor air of certain toxic heavy metals and polycyclic aromatic hydrocarbons. Equivalent regulations exist in Scotland, Wales and Northern Ireland.

The UK monitors and models air quality to assess compliance with the air quality limit and target values set out in the EU legislation above. The results of the assessment are reported to the commission on an annual basis. Air quality monitoring is also carried out by local authorities to meet local air quality management objectives.

In early 2011, the European Commission began a review of EU air quality policy which will culminate with the publication of new proposals on ambient air quality and emissions ceilings in 2013. On 30 June 2011, the Commission launched a public consultation inviting views on the best way to improve the EU's air quality legislation. The consultation closed in October 2011.

The **EU Thematic Strategy on Air Quality (2005)** identifies that despite significant improvements in air quality across the EU, a number of serious air quality issues still persist. The strategy promotes an approach, which focuses upon the most serious pollutants, and that more is done to integrate environmental concerns into other policies and programmes. The objective of the strategy is to attain levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment. The strategy emphasises the need for a shift towards less polluting modes of transport and the better use of natural resources to help reduce harmful emissions.

The **Industrial Emissions Directive (IED) (2010/75/EU)** combines seven existing air pollution directives, including the Large Combustion Plant Directive and the Integrated Pollution Prevention and Control (IPPC) Directive. As with previous directives aimed at minimising emission release, part of the benefit of the Industrial Emissions Directive is that it includes several new industrial processes, sets new minimum emission limit values (ELVs) for large combustion plant and addresses some of the implementation issues of the IPPC.

The **National Emissions Ceilings Directive (2001/81/EC)** came into force in 2001, and Member States were required to transpose it into their national legislation by November 2002. This Directive sets 'ceilings' (maximum values to be achieved by 2010) for total national emissions of four pollutants: sulphur dioxide; oxides of nitrogen; volatile organic compounds; and ammonia. These four pollutants contribute to acidification, eutrophication, and formation of ground level ozone.

6.2.2 National

UK

The **Air Quality Standards Regulations (2010)** transpose into UK law Directive 2008/50/EC on ambient air quality and cleaner air for Europe and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air. The objective of the Regulations is to improve air quality by reducing the impact of air pollution on human health and ecosystems. The standards set out air quality objectives, limit values and target values for pollutants, namely benzene, 1,3 butadiene, carbon monoxide, lead, nitrogen dioxide, PM₁₀, sulphur dioxide and PM₂₅.

The **Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)** sets out a way forward for work and planning on air quality issues.

The **Environment Act (1995)** was enacted to protect and preserve the environment and guard against pollution to air, land or water. It requires local authorities to undertake local air quality management (LAQM) assessments against the standards and objectives prescribed in regulations. Where any of

these objectives are not being achieved, local authorities must designate air quality management areas and prepare and implement remedial action plans to tackle the problem.

The ***Ozone-Depleting Substances (Qualifications) Regulations (2009)*** introduces controls on the production, use and emissions from equipment of a large number of "controlled substances" that deplete the ozone layer.

England

The ***National Planning Policy Framework (NPPF) (2012)*** expects the planning system to prevent new development from contributing to unacceptable levels of air pollution. Planning policies and decisions are therefore expected to ensure that new development is appropriate for its location and take into account "*The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution*". (paragraph 120).

The Framework expects planning policies to "*sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.*"(paragraph 124). In doing so, local planning authorities are expected to focus on whether the development itself is an acceptable use of the land, and the impact of the use, rather than the control of processes or emissions themselves where these are subject to approval under pollution control regimes.

6.2.3 East Midlands

No relevant regional plans or programmes were identified under this topic.

6.3 Overview of the Baseline

6.3.1 National

UK

Air quality in the UK is generally good. In 2008 urban background particulate levels averaged 20 micrograms per cubic metre ($\mu\text{g m}^{-3}$) (Air Quality Strategy Objective and EU Limit Value is $40\mu\text{g m}^{-3}$); roadside particulate levels averaged $28\mu\text{g m}^{-3}$; urban background ozone levels averaged $59\mu\text{g m}^{-3}$; and rural ozone levels averaged $71\mu\text{g m}^{-3}$.¹¹³ The long-term decrease in urban background particulate concentrations has levelled off in the last two years, remaining at 19 micrograms per cubic metre ($\mu\text{g m}^{-3}$).

¹¹³ Defra, Environment in your Pocket Statistics, 2009, <http://www.defra.gov.uk/evidence/statistics/environment/eiyp/>

3) since 2008. Roadside levels increased slightly in 2010 to $23\mu\text{g m}^{-3}$, although this followed a relatively large decrease in 2009, and there is an overall decreasing trend.

In 2010, 234 Local Authorities in the UK (58% of all UK authorities) had declared Air Quality Management Areas (AQMAs), a designation made by a Local Authority where an assessment of air quality results in the need to devise an action plan to improve the quality of air.¹¹⁴ AQMAs are predominantly in urban areas along busy and congested road networks and are generally related to nitrogen dioxide (NO_2) (in 93% of cases) and particulates (PM_{10}) (in 33% of cases). Transport is identified as the main source of pollution in 92% of all AQMAs.

In the UK 26 days of moderate or high air pollution were recorded in urban areas, and 45 days of moderate or high air pollution were recorded in rural areas respectively in 2008.

England

Within England, in December 2009, there were 203 local authorities with AQMAs, 33 of which were within London. In 83.7% of cases the AQMA is required for NO_2 pollution and 31.5% they were required for PM_{10} pollution. In 94% of cases the source of pollution was from transport and 4.4% the source was from industry.

Overall, trends in PM_{10} concentrations for all metrics in all parts of England appear to have levelled out in recent years. However, four sites in England (London Marylebone Road, London Camden roadside, Brighton roadside and Bradford Centre) were over the 24 hour objective for PM_{10} meaning that more than the 35 days were recorded as being in exceedance of a 24 hour average value of $50\mu\text{g.m}^{-3}$.¹¹⁵

In 2003 it was estimated that 2161.7 km of road exceeded an annual mean value of $31.5\mu\text{g.m}^{-3}$ (closely equivalent to the objective value), 935.9 km of which was within London making up 43.2% of the total length of road exceedance.

In 2003 the population mean weighted $\text{PM}_{2.5}$ concentration for England (excluding London) was $14.4\mu\text{g.m}^{-3}$, $17.4\mu\text{g.m}^{-3}$ in Inner London and $16.9\mu\text{g.m}^{-3}$ in Outer London.

Four sites in England (London Marylebone Road; London A3 roadside; Camden roadside and Bristol Old Market roadside) exceeded the AQS 1 hour objective for NO_2 meaning there were more than 18 exceedances of the $200\mu\text{g/m}^3$ target in 2005.

¹¹⁴ Defra, Review of local air quality management, 2009, <http://archive.defra.gov.uk/environment/quality/air/airquality/local/documents/laqm-report.pdf>

¹¹⁵ Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Vol 2 (2007) <http://archive.defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-qualitystrategy-vol2.pdf>

6.3.2 East Midlands

Within the East Midlands, air quality issues can be linked to two main sources of pollutants: transport and industry. Several important transport corridors (e.g. A1, M1, A14) run through the region with industry concentrated towards the north. Transport is currently the most important source of pollution as nitrogen dioxide from traffic is the main reason for failing to meet air quality standards in the region. Road traffic grew in the East Midlands by 22.7% between 1993 and 2002 with consequent detrimental effects on air quality. Poor air quality in rural areas, in terms of nitrogen dioxide, carbon monoxide and sulphur dioxide is most frequently recorded at locations close to the urban industrial areas and the transport corridors.

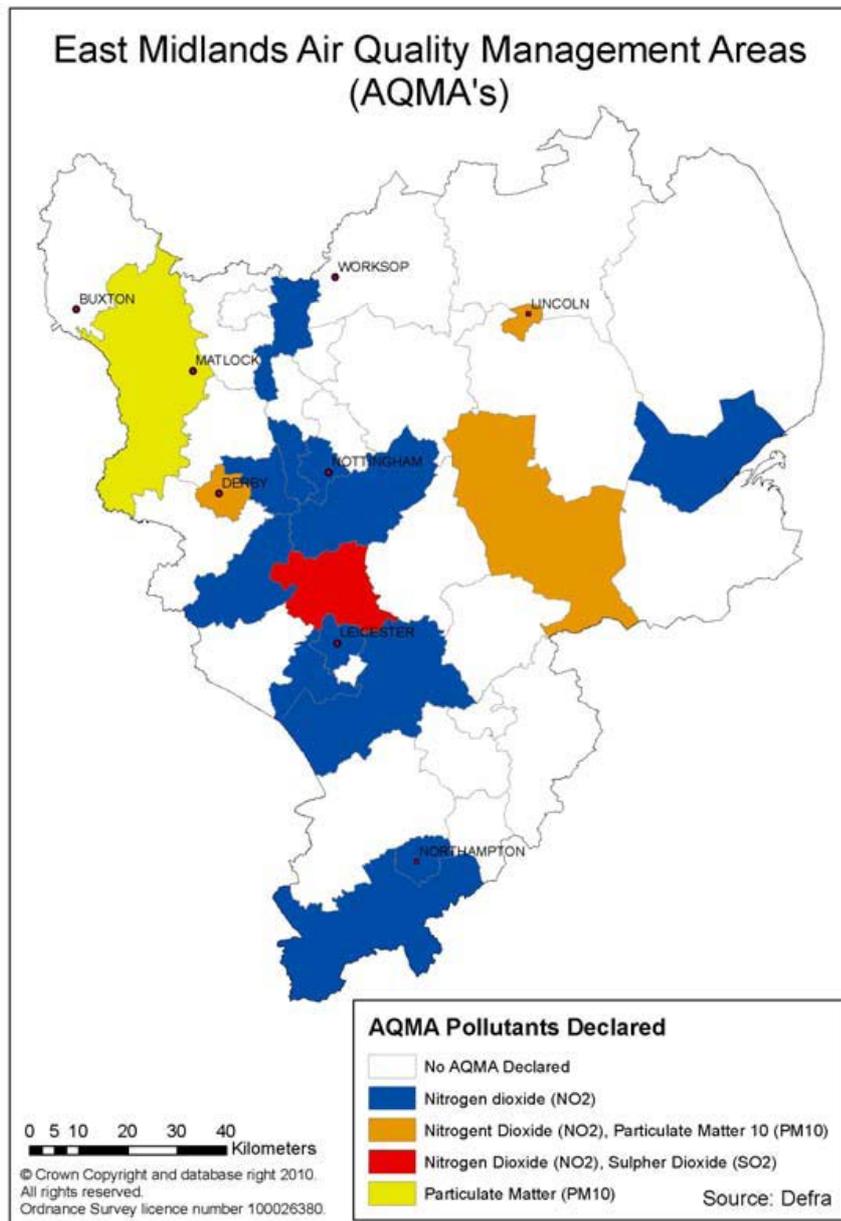
Particulate/dust problems are associated with some of the region's mineral extraction and processing, ranging from limestone to aggregate for construction. Generally, emissions from industry have improved over recent years and now appear relatively constant. Regulated industries in the East Midlands contribute to around 13 per cent of national releases of these eight key air pollutants, with the region's industries producing over 26 per cent of national nitrogen oxide emissions. Since 2005 regulated industry in the East Midlands has seen an overall reduction of 38 per cent, in these priority pollutants. Emissions of SO₂ and lead have fallen by 64 per cent and 47 per cent respectively. Since 2005 recorded emissions of PM₁₀ have increased as more industry sectors have come into the regulatory framework, in particular intensive agricultural units¹¹⁶.

Air quality in the region is improving. Since 2005, emissions of nitrogen oxide has fallen by 64%, and emission of lead by 47%. However, emissions of PM10 have increased by 20%, driven in part by an increase in the number of intensive agricultural units. Equally, the emissions of sulphur dioxide have fallen considerably since 2005, whilst carbon emissions have reduced by approximately 33%. Emissions of Non-Methane Volatile Organic Compounds, in contrast has risen by over 10% since 2005, despite a dramatic fall in 2006-7, whilst emissions of Butadiene has risen dramatically in 2008. The impact of changing air quality has an impact on local habitats and species. For example, the decline in sulphur dioxide has led to the return of lichens.

Within the East Midlands 17 Local Authorities have declared Air Quality Management Areas (AQMAs), with 16 of these declaring nitrogen dioxide (NO₂) as a pollutant. Four of these authorities have declared particulate matter <10 µm (PM₁₀) as a pollutant and one authority (Charnwood Borough Council) has declared sulphur dioxide (SO₂) as a pollutant (**Figure 6.1**). Air passenger traffic is an important factor in the East Midlands. The most important emissions from aircraft engines are of nitrogen dioxide (NO₂) and particulates (PM₁₀). On a national scale the contribution of air transport and associated activities to these impacts is small, but locally in the East Midlands their effect is significant due to the high density of air traffic.

¹¹⁶ Environment Agency (2010) State of the Environment Report http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Reg_Bus.pdf

Figure 6.1 East Midlands AQMAs¹¹⁷

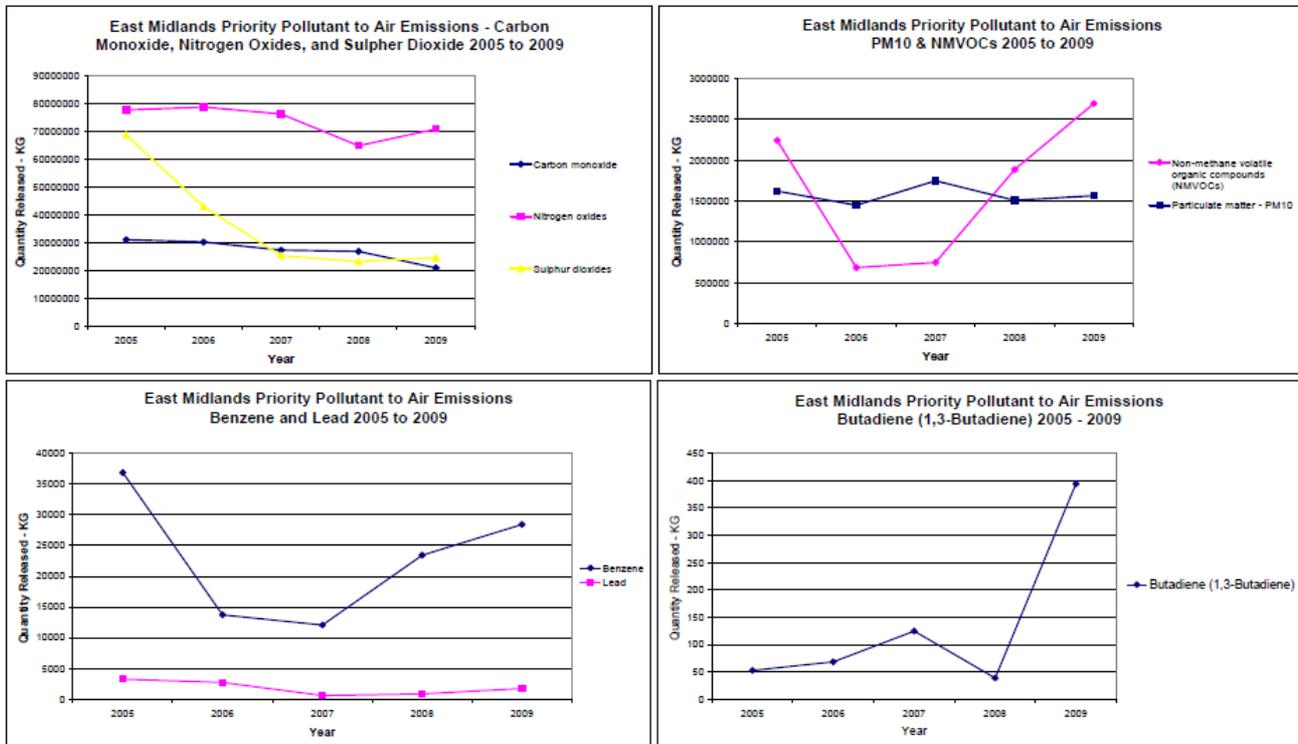


Per capita road transport end user carbon dioxide emissions in the East Midlands exceeded the national average at 2.4 tonnes compared to 2.1 tonnes in 2008¹¹⁸. For a range of other pollutants, there is mixed performance (**Figure 6.2**).

¹¹⁷ Environment Agency (2010) State of the Environment http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Reg_Bus.pdf

¹¹⁸ East Midlands Councils (2011) The East Midlands in 2009/10

Figure 6.2 Air Pollution Trends 2005 - 2009¹¹⁹



6.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

6.4.1 National

UK

Air quality has improved in the UK over the last sixty years as a result of the switch from coal to gas and electricity for heating of domestic and industrial premises, stricter controls on industrial emissions, higher standards for the composition of fuel and tighter regulations on emissions from motor vehicles. However, poor air quality - particularly from vehicles - remains a significant issue for community health and for biodiversity, especially in/downwind of urban areas and major transport networks.

In 2005, 29% of monitoring sites within the UK exceeded the annual mean NO₂ objective of 40µg.m⁻³ and 4% of monitoring sites exceeded the 1 hour objective of 200µg.m⁻³ more than 18 times a year.¹²⁰

In 2005, roughly 40% of the 85 monitoring network sites exceeded the Air Quality's Strategy objective for O₃.¹²⁰

Air pollution is a significant cause of decline in the condition of 55 of UK SSSIs.¹²¹ However, it is often very difficult to determine the effects of air pollution on SSSIs, given the complex interactions between pollution impacts, management and abiotic influences. As a result, the impacts of air pollution, and the identification of air pollution as an adverse activity affecting condition, are considered to be substantially under-reported.¹²¹

Research by the Government has found that in a number of urban areas, the least affluent members of society tend to be exposed to the highest levels of air pollution¹²². This is particularly the case in England, where AQMAs declared for NO₂ are often in the most socially deprived areas people in deprived communities exposed to 41% higher concentrations of NO₂ than those people living in average communities¹²³, although this is less marked in Wales and Scotland. The report concluded that measures to improve air quality can have a more pronounced effect in deprived areas and could help to reduce this social inequality¹²⁴.

6.4.2 East Midlands

Emissions from pollutants from transport are the main cause of poor air quality in the region, while car use is increasing. Global warming may have a significant impact on the air quality in the region. As air temperature rises, the level of pollution in the air increases accordingly. The Appropriate Assessment of the Revision of the East Midlands RSS (Trewick Environmental Consultants, 2008) identified the following European Protected Sites within the East Midlands over their critical loads for air pollutants:

- Bee's Nest and Green Clay Pits SAC: Nitrogen (Fractional)
- Birklands and Bilhaugh SAC: Acid Deposition (Significant) Nitrogen (Significant)
- Gibraltar Point SPA & Ramsar: Acid Deposition (Significant)
- Grimsthorpe SAC: Nitrogen (Fractional)
- Peak District Dales SAC: Nitrogen (Significant)
- Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC: Nitrogen (Fractional)

¹¹⁹ Environment Agency (2010) State of the Environment http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Reg_Bus.pdf

¹²⁰ UK Air Quality Archive, www.airquality.co.uk/archive

¹²¹ Joint Nature Conservation Committee (2006) Common Standards Monitoring for Designated Sites: First Six Year Report, http://www.jncc.gov.uk/pdf/CSM_06summary.pdf

¹²² Dept. for Communities and Local Government (2006) Air Quality and Social Deprivation in the UK: an environmental inequalities analysis, www.airquality.co.uk/reports/cat09/0701110944_AQinequalitiesFNL_AEAT_0506.pdf

¹²³ UK Air Quality Archive, www.airquality.co.uk/archive

¹²⁴ Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) http://www.official-documents.gov.uk/document/cm71/7169/7169_i.asp

- South Pennine Moors (SAC & SPA designations): Acid Deposition (Extreme) Nitrogen (Significant)
- West Midland Mosses SAC & Midlands Meres and Mosses Ramsar: Acid Deposition (Extreme) Nitrogen (Significant)

6.5 Likely Evolution of the Baseline

6.5.1 National

The current trend in air condition is generally towards improved air quality, both in rural and urban settings¹²⁵.

Between 1990 and 2008 there was no clear long-term trend in ozone levels with increases in urban background ozone levels of 40.5%, however between 1980 and 2007 nitrogen oxides (NO_x) fell by 42%, particulates (PM₁₀) fell by 59% and sulphur dioxide (SO₂) by 84% (between 1990 and 2007).¹²⁶

Reductions are a product of: improved technology; changes in energy generation; targeted air quality management policies; and reductions in specific greenhouse gases, CO₂, CH₄, N₂O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Projections of UK total emissions:¹²⁷

Best case scenario (full air quality target compliance):

- NO_x: 2010 = 1136.4 ktonnes/yr; 2015 = 963.1 ktonnes/yr; 2020 = 799.1 ktonnes/yr.
- PM₁₀: 2010 = 133.5 ktonnes/yr; 2015 = 129.4 ktonnes/yr; 2020 = 134.4 ktonnes/yr.

Worst case scenario (extension of 2003 baseline):

- NO_x: 2010 = 1151.0 ktonnes/yr; 2015 = 1030.3 ktonnes/yr; 2020 = 910.7ktonnes/yr.

Measurements and modelling show that, without further measures, objectives for particles such as particulate matter (PM₁₀), nitrogen dioxide (NO₂), ozone (O₃) and polycyclic aromatic hydrocarbons (PAHS) are unlikely to be achieved in some parts of urban areas within the UK¹²⁸.

¹²⁵ http://www.defra.gov.uk/sustainable/government/progress/documents/SDIYP2009_a9.pdf

¹²⁶ <http://www.defra.gov.uk/evidence/statistics/environment/eivp/>

¹²⁷ http://www.airquality.co.uk/reports/reports.php?action=category§ion_id=17

¹²⁸ Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, http://www.official-documents.gov.uk/document/cm71/7169/7169_i.asp

England

PM₁₀ pollution overall has been decreasing in recent years and this is predicted to continue in the future. By 2015 71.7km of main urban road is predicted to be in exceedance of 31.5µg/m³ (roughly equivalent to the Stage 1 PM₁₀ 24 hour limit value and objective), this is a 96.7% decrease compared to the 2003 baseline.¹²⁹

Concentrations of NO₂ have been declining on average, although London Marylebone Road (the site with the highest NO₂ levels in England) and several other sites, are showing increasing concentrations in the most recent years. By 2015, 1,331 km of main urban road is predicted to be in exceedance of the annual mean objective of 40µg.m⁻³, this is an 80.2% decrease compared to the 2003 baseline.

6.5.2 East Midlands

Increasing levels of traffic will lead to additional pressure on the road network and decreasing levels of air quality, particularly within urban areas and around strategic transport corridors. Higher temperatures experienced during the summer as a result of a changing climate can be expected to amplify the negative effects of poor air quality. However, background air quality across the UK can be expected to improve over the next 10-15 years, primarily as a result of tightening EU emission standards for cars and lorries and cleaner energy generation.

It is also likely that a strategy of targeting further growth at existing centres will reduce the net distance that people in the region need to travel (e.g. to access work, services and facilities), and thus have benefits in terms of potentially reducing air pollution along the trunk road network. This is unlikely to lead to benefits in terms of health (as sensitive receptors will not be in close proximity), but there could potentially be benefits to ecosystems. However, the significance of such benefits remains uncertain, and it is appropriate to consider effects on human health first and foremost.

Rural air pollution from ozone is also considered likely to worsen as an additional impact of climate change. However, the underlying cause of this effect is trans-boundary in nature.

6.6 Assessing significance

Table 6.1 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the air quality objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

¹²⁹ Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, /www.official-documents.gov.uk/document/cm71/7169/7169_i.asp

Table 6.1 Approach to determining the significance of effects on air quality

Effect	Description	Illustrative Guidance
++	Significant positive	<ul style="list-style-type: none"> Alternative would have a significant and sustained positive impact on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species) Alternative would have a strong positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function). Alternative will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to such sites.
+	Positive	<ul style="list-style-type: none"> Alternative would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species). Alternative may have a positive net effect on local biodiversity (e.g. – through reduction in disturbance/pollutant emissions, or some habitat creation leading to temporary improvement to ecosystem structure and function). Alternative will enhance existing public access to areas of wildlife interest in areas where there is some demand for such sites.
0	No (neutral effects)	<ul style="list-style-type: none"> Alternative would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species). Alternative would not affect public right of way or access to areas of wildlife interest.
-	Negative	<ul style="list-style-type: none"> Alternative would have minor residual impact on European or national designated sites and/or protected sites (e.g. – prevents reaching one of the conservation objectives on site, short term decrease in population of designated species). These impacts could not be effectively avoided but could be effectively compensated for. Alternative would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through a minor increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function). Alternative will decrease public access to areas of wildlife interest in areas where there is some demand for such sites.
--	Significant negative	<ul style="list-style-type: none"> Alternative would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for. Alternative would have strong negative effects on local biodiversity (e.g. – through an minor increase in disturbance/pollutant emissions, or considerable loss of habitat leading to long term loss of ecosystem structure and function).
?	Uncertain	<ul style="list-style-type: none"> From the level of information available the impact that the Alternative would have on this objective is uncertain.

6.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 6.2 summarises the significant effects identified in the detailed assessment of the East Midlands Regional Plan policies against the air quality topic. Significant effects are anticipated with two policies: those relating to biodiversity where positive long-term effects could be seen if policy measures were followed through, and air transport where significant negative impacts are expected over the longer term.

Table 6.2 Significant effects against the air quality topic

Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
29. Priorities for Enhancing the Region's Biodiversity	Revocation	+	++	++	This policy seeks to deliver a step-change in the extent and condition of biodiversity across the region. In combination with other policies relating to woodland creation, for example, the result could be significantly improved air quality in certain localities. Revocation could slow the pace and effectiveness of this aspiration.
	Retention	+	++	++	
56. Regional Priorities for Air Transport	Revocation	0	--	--	This policy seeks further expansion of East Midlands Airport. Both in terms of the impact of aircraft movements on air quality and access to the airport by car, significant negative effects are expected over the medium and longer term. Airport expansion is likely both with and without the policy.
	Retention	0	--	--	

6.7.1 Effects of Revocation

A significant concern for the region is the level of growth of transport linked to the anticipated level of growth in homes and employment. This could contribute significantly to air pollution particularly in those areas which are already subject to the AQMAs.

The regional strategy contains a range of policies which seek to address transport growth and to achieve more sustainable transport modes such as increased use of public transport, walking and cycling. Taken together the transport policies have the potential, if implemented, to reduce traffic growth and contribute to improving air quality with the related benefits to human health and biodiversity. However, much will depend on a number of factors including whether the population does change its behaviour, pricing policy on public transport, technological advances in engine efficiency and emission standards.

It is difficult to predict the impact of revocation of these policies. However, the legal requirement to achieve the air quality standards set by European Directives, underpinned by national and locally derived solutions (for example, the Action Plans for Air Quality Management Areas) is likely to have a greater effect on air quality than the policies in the regional strategy.

This is reflected in paragraph 124 of the NPPF which states that "planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.

6.7.2 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies and retaining the non spatial policies; or
- Retention of policies, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on air quality associated with the revocation of policies are summarised in **Table 6.2**. The principal issue concerns promotion of the expansion of the capacity of the East Midlands Airport and its likely effect on air quality in the region. This is likely to be applicable in the medium and longer term and be associated with both increased flights and physical expansion (albeit within the current boundaries of the airport).

The assessment has found that there are no policies in the East Midlands Regional Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

6.7.3 Effects of Retention

Retaining the regional strategy is likely to result in the environmental baseline continuing to evolve as identified in section 6.5.2 above. Many of the policies seek to change behaviour or are outside the direct control of the planning system. Those policies that can be controlled through the planning system are effectively repeated in the NPPF, so as the regional strategy became more out of date, the related policies in the NPPF would bite more.

6.8 Mitigation Measures

As revocation is not considered to have any adverse effects on air quality no specific mitigation measures (beyond adoption of relevant policies in the NPPF) have been identified.

7. Climate Change

7.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals for revoking the regional strategies on climate change. Information is presented for both national and regional levels.

Climate change within this context is concerned with increasing the likelihood of climate change effects through greenhouse gas emissions and the ability to adapt to predicted climate change effects.

There are links between the climate change and other topics in the SEA, specifically biodiversity and nature conservation, air, coastal change and flood risk, and traffic and material assets (transport).

7.2 Summary of Plans and Programmes

7.2.1 International

The **United Nations Framework Convention on Climate Change** (UNFCCC) sets an overall framework for international action to tackle the challenges posed by climate change. The Convention sets an ultimate objective of stabilising greenhouse gas concentrations *"at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system."* The Convention requires the development and regular update of greenhouse gas emissions inventories from industrialised countries, with developing countries also being encouraged to carry out inventories. The countries who have ratified the Treaty, known as the Parties to the Convention, agree to take climate change into account in such matters as agriculture, industry, energy, natural resources and where activities involve coastal regions. The Parties also agree to develop national programmes to slow climate change.

The **Kyoto Protocol**, adopted in 1997, is the key international mechanism agreed to reduce emissions of greenhouse gases. The Kyoto Protocol sets binding targets for 37 industrialised countries and the European Community for reducing greenhouse gas emissions. These targets equate to an average of 5% reductions relative to 1990 levels over the five-year period 2008-2012. The key distinction between this and the UNFCCC is that the Convention encourages nations to stabilise greenhouse gases while the Kyoto Protocol commits them to doing so through greenhouse gas reductions. Countries must meet their targets primarily through national measures however, the Kyoto Protocol offers them an additional means of meeting their targets by way of three market-based mechanisms: emissions trading, the clean development mechanism (CDM) and Joint Implementation (JI).

The Protocol's first commitment period started in 2008 and ends in 2012. At the Durban conference in December 2011, governments decided that the [Kyoto Protocol](#) would move into a second commitment period in 2013, in a seamless transition from the end of the second commitment period in 2012. Governments of Parties to the Kyoto Protocol also made a few amendments to the Protocol, among others, the range of greenhouse gases covered. A major outcome of was the establishment of the [Durban Platform for Enhanced Action](#), which spelt out a path to negotiate a new legal and universal emission reduction agreement by 2015, to be adopted by 2020.

In March 2007 the EU's leaders endorsed an integrated approach to climate and energy policy that aims to combat climate change and increase the EU's energy security while strengthening its competitiveness. They committed Europe to transforming itself into a highly energy-efficient, low carbon economy. It set a series of demanding climate and energy targets to be met by 2020, known as the "20-20-20" targets. These are:

- a reduction in EU greenhouse gas emissions of at least 20% below 1990 levels;
- 20% of EU energy consumption to come from renewable resources; and
- a 20% reduction in primary energy use compared with projected levels, to be achieved by improving energy efficiency.

To secure a reduction in EU greenhouse gases, the **EU Emissions Trading Scheme (EU ETS)**, a Europe wide scheme had been introduced in 2005. EU ETS puts a price on carbon that businesses use and creates a market for carbon. It allows countries that have emission units to spare (emissions permitted to them but not "used") to sell this excess capacity to countries which are likely to exceed their own targets. Since carbon dioxide (CO₂) is the principal greenhouse gas, this is often described as a carbon market or trading in carbon; the total amount of carbon emissions within the trading scheme being limited, and reduced over time. The **Integrated Climate and Energy Package** included a revision and strengthening of the Emissions Trading System (ETS). A single EU-wide cap on emission allowances will apply from 2013 and will be cut annually, reducing the number of allowances available to businesses to 21% below the 2005 level in 2020. The free allocation of allowances will be progressively replaced by auctioning, and the sectors and gases covered by the system will be somewhat expanded.

- The **EU Sixth Environmental Action Plan (EAP) (2002-2012)** reviews the significant environmental challenges and provides a framework for European environmental policy up to 2012. The four priority areas are Climate Change; Nature and Biodiversity; Environment and Health; Natural Resources and Waste. The European Commission has recently consulted on the EU environment policy priorities for 2020: Towards a 7th EU Environment Action Programme. This looks to further integrating climate and environment into other policies and instruments.
- **The Renewable Energy Directive (2009/28/EC)** mandates levels of renewable energy use within the European Union. The directive requires EU member states to produce a pre-

agreed proportion of energy consumption from renewable sources such that the EU as a whole shall obtain at least 20% of total energy consumption from renewables by 2020. This is then apportioned across member states. The UK's target is for 15% of energy consumption in 2020 to be from renewable sources. Under Article 4 of the directive each Member State is also required to complete a National Renewable Energy Action Plan that will set out the trajectory and measures that will enable the target to be met.

7.2.2 National

UK

In the UK, the **Climate Change Act (2008)** introduces legislative targets for reducing the UK's impacts on climate change and the need to prepare for its now inevitable impacts. The Act sets binding targets for a reduction in CO₂ emissions of 80% by 2050, compared to a 1990 baseline. Interim targets and five-year carbon budget periods will be used to ensure progress towards the 2050 target. The Climate Change Act 2008 also requires the Government, on a regular basis, to assess the risks to the UK from the impact of climate change and report to Parliament. The first **Climate Change Risk Assessment** was published in 2012. Government will be required to publish and regularly update a programme setting out how the UK will address these likely impacts, based on the principles of sustainable development, thereby ensuring that environmental, economic and social issues are all fully considered. The Climate Change Act 2008 also introduced powers for Government to require public bodies and statutory undertakers (in this context these are utilities companies which provide a public service) to carry out their own risk assessments and make plans to address those risks.

The **Carbon Plan: Delivering our low carbon future (2011)** sets out how the UK will achieve decarbonisation within the framework of energy policy: to make the transition to a low carbon economy while maintaining energy security, and minimising costs to consumers, particularly those in poorer households. It includes proposals for energy efficiency, heating, transport and industry.

The **Energy Act 2011** provides for some of the key elements of the Government's energy programme and including a step change in the provision of energy efficiency measures to homes and businesses. It also makes improvements to the framework for enabling and securing low carbon energy supplies and fair competition in the energy markets.

England

The **National Planning Policy Framework (2012)** provides a set of core land-use planning principles that should underpin both plan-making and decision-taking. These include supporting "*the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy)*". The Framework

underlines that planning's role in tackling climate change is central to the economic, social and environmental dimensions of sustainable development. Local planning authorities are therefore expected to adopt proactive strategies to mitigate and adapt to climate change (in line with the objectives and provisions of the Climate Change Act 2008), taking full account of flood risk, coastal change and water supply and demand considerations.

To support the move to a low carbon future, local planning authorities are expected to plan for new development in locations and ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings and have a positive strategy to promote energy from renewable and low carbon sources. Local Plans are also expected to take account of climate change over the longer term, including factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change.

7.2.3 East Midlands

No relevant regional plans or programmes were identified under this topic.

7.3 Overview of the Baseline

7.3.1 National

UK

In 2010, UK emissions of the basket of six greenhouse gases covered by the Kyoto Protocol were estimated to be 590.4 million tonnes carbon dioxide equivalent (MtCO₂e)¹³⁰. This was 3.1% higher than the 2009 figure of 572.5 million tonnes. Between 2009 and 2010 the largest increases were experienced in the residential sector, up 15.1%(11.8 MtCO₂e), and the energy supply sector, up by 2.8%(5.6 MtCO₂e). Emissions from all other sectors were relatively stable, compared to 2009 levels.

Carbon dioxide (CO₂) is the main greenhouse gas, accounting for about 84 per cent of total UK greenhouse gas emissions in 2010⁹¹. In 2010, UK net emissions of carbon dioxide were estimated to be 495.8 million tonnes (Mt). This was around 3.8% higher than the 2009 figure of 477.8 Mt. There were notable increases in emissions from the residential sector, up by 15.8%(11.8 Mt), and from the energy supply sector, up 3.1%(5.8 Mt). Again, emissions from all other sectors were relatively unchanged from 2009.

¹³⁰DECC Statistical Release February 2012,

<http://www.decc.gov.uk/assets/decc/11/stats/climate-change/4282-statistical-release-2010-uk-greenhouse-gas-emissi.pdf>

All areas of the UK are getting warmer, and the warming is greater in summer than in winter¹³¹.

There is little change in the amount of precipitation (rain, hail, snow etc) that falls annually, but more is falling in the winter, with drier summers, for much of the UK¹³¹. Sea levels are rising, and are greater in the south of the UK than the north¹³¹. The widespread flooding events of 2007 cannot be directly attributed to climate change but it is expected to see more extreme rainfall events in the future, and hence more flooding as our climate changes.

England

In 2009 England's net emissions of CO₂ (by end user) were estimated to be 372 million tonnes, giving an estimate of 7.2 tonnes of CO₂ emissions per capita¹³². This compares to emissions of 433 million tonnes, giving an estimate of 8.6 tonnes of CO₂ emissions per capita in 2005.

In 2008, 29% of CO₂ emissions were from the energy supply sector, 20.3% from road transport, 31.1% from business and 24.1% from residential fossil fuel use.¹³³

The 10 warmest years on record have occurred since 1997. Global temperatures for 2000-2008 now stand almost 0.2% warmer than the average for the decade 1990-1999.

Rainfall has decreased in summer and increased in winter since records began in 1766. Winter rainfall has been increasingly falling as heavy events over the past 45 years (rather than longer, more gentle rainfall). This kind of intense rainfall is a key factor in river and surface water flooding.

The frequency of dry summers has increased over the decades, with 10 of the driest summers occurring in the last 30 years.

Sea levels around the UK have risen by 1mm/yr in the twentieth century, (corrected for land movement). The rate for the 1990s and 2000s has been higher. Rising sea levels are the result of various factors including the warming up and expansion of the ocean and the melting of low latitude glaciers due to climate change.

¹³¹ Department for Energy and Climate Change: 2007 Greenhouse Gas Emissions, Final Figures 3rd February 2009, http://www.decc.gov.uk/assets/decc/202_20090326104955_e_@@_greenhousegasemissions.pdf

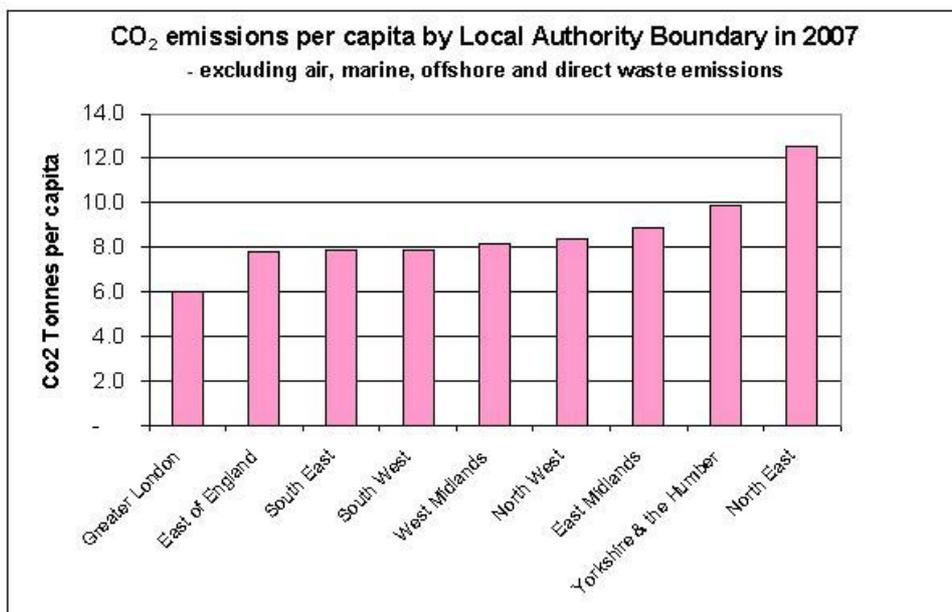
¹³² DECC Statistical Release September 2011, <http://www.decc.gov.uk/assets/decc/11/stats/climate-change/2750-statistical-summary-la-co2-emissions.pdf>

¹³³ DECC http://www.decc.gov.uk/assets/decc/Statistics/climate_change/localAuthorityCO2/457-local-regional-co2-2005-2008-full-data.xls

7.3.2 East Midlands

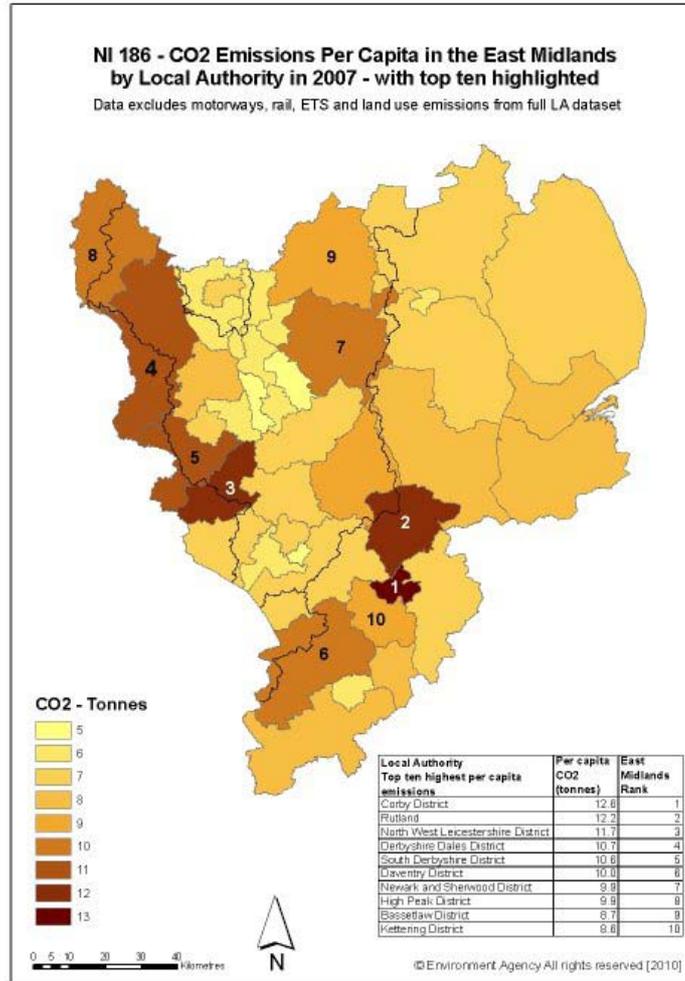
According to the Environment Agency¹³⁴ in 2007, on average each person in the East Midlands was responsible for the emission of 8.9 tonnes of CO₂ (excluding emissions from air and marine transport, offshore emissions and direct emissions from waste). The UK average is 8.4 tonnes per capita and the East Midlands has the third highest figure of the English regions (**Figures 7.1 and 7.2**).

Figure 7.1 CO₂ Emissions per capita by Region



¹³⁴ Environment Agency (2010) State of the Environment Report East Midlands http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Climate_change.pdf

Figure 7.2 East Midlands CO2 Emissions per Capita



According to the East Midlands AMR¹³⁵ in the UK as a whole the total volume of CO² emissions attributed to end users has fallen by 3 per cent between 2005 and 2008. Over the longer term, falling emissions from the industrial and commercial sector, due to cleaner processes and continued changes in the industrial structure, have been the principal drivers of the total decline in emissions attributed to UK end users. Between 2005 and 2008, emissions from industrial and commercial end users in the UK fell by 4.2 per cent whilst domestic emissions fell by 0.7 per cent. Emissions from road transport have fallen at a comparable rate to industrial and commercial, decreasing by 4.4 per cent between 2005 and 2008. In the East Midlands, the division of emissions between the three end user categories are as follows:

¹³⁵ East Midlands Councils (2011) The East Midlands in 2009/10

- Industrial and commercial users accounted for 44.7 per cent of end user emissions (closely in line with the national average) in 2008;
- Domestic users accounted for 26.3 per cent of all end user emissions, which was below the share in the England overall, at 29.4 per cent; and
- Road transport accounted for a larger share of end user emissions in the region, at 11,200 kilotonnes, or 28.9 per cent of total emissions. This is just over three percentage points higher than the national share.

In per capita terms, road transport end user emissions in the East Midlands also exceeded the national average, at 2.4 tonnes in 2005 compared to 2.1 tonnes in 2008. Road transport emissions in the East Midlands decreased at the same rate as the national average between 2005 and 2008, by only -0.2 percentage points. The challenge in the East Midlands will be to overcome the relatively dispersed spatial pattern of development, with no single dominant centre and significant inter and intra-regional flows of commuters and goods (**Table 7.1**). Since 2006 the chosen mode of transport to work has remain largely unchanged, with 77% of travel by car, 7% using public transport and 11% walking. This extent of car dependency is above and use of public transport is below the national average.

Table 7.1 End User Carbon Dioxide Emissions 2005 to 2008

	Total Emissions (million tonnes carbon dioxide)				Per Capita Emissions (tonnes carbon dioxide)			
	Industrial, Commercial and Public	Domestic	Road Transport	Total (inc. land use and forestry)	Industrial, Commercial and Public	Domestic	Road Transport	Total (inc. land use and forestry)
East Mids '05	18	11	11	40	4.2	2.4	2.6	9.3
UK '05	238	150	137	523	4.0	2.5	2.3	8.7
East Mids '06	18	11	11	40	4.1	2.4	2.5	9.2
UK '06	238	151	135	522	3.9	2.5	2.2	8.6
East Mids '07	17	10	11	39	3.9	2.3	2.5	8.9
UK '07	233	146	136	513	3.8	2.4	2.2	8.4
East Mids '08	17	10	11	38	3.8	2.3	2.4	8.6
UK '08	228	149	131	507	3.7	2.4	2.1	8.2

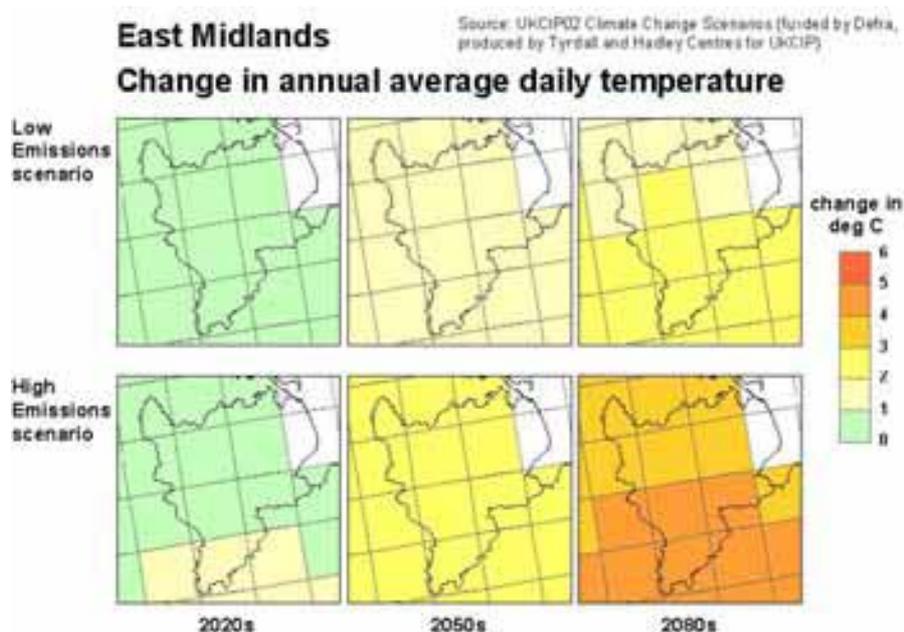
The UK climate Impacts Programme (UKCIP) has produced models which show that the region should expect hotter drier summers and warmer wetter winters. Specific local predictions for 2050, under a “medium emissions” scenario, include:

- a 2.5% increase in mean summer temperatures;

- 16% decrease in summer rainfall, offset by a 14% increase in winter rainfall;
- A rise in sea level of between 14-22cm, causing a large increased risk of flooding.
- A 50-80% fall in mean monthly river flows.

These are the central estimates for a medium emissions scenario (**Figure 7.3**).

Figure 7.3 Change In annual average temperature 2020s -2080s



By the 2050s eastern and central England could have irrigation needs similar to those currently seen in Central and Southern Europe. Mean monthly river flows could decrease by 50 to 80 per cent. By the 2080s, cloud cover is likely to decrease by up to 15% in summer and daily wind speed to increase by 10% in the winter. Snowfall is predicted to decrease by 60-90% and sea level is predicted to rise by between 22 and 82cm. The sea level along the East Midlands coastline is already rising by between 1 and 2mm a year and storm events are becoming increasingly frequent. 80% of the region's greenhouse gases result from energy sources. A major source of greenhouse gas emissions is the burning of fossil fuels, with power stations emitting 46% of the greenhouse gases in the East Midlands. Road transport (14%), domestic energy (14%), business and industrial energy use (7%) also all contribute. Remaining emissions are from agriculture/livestock, coalmines and gas transmission and landfill sites.

The East Midlands has a greater range of rates of precipitation and temperature than most regions in England. Between 1901 and 1998 annual mean temperatures over the centre of England including the East Midlands showed a warming trend of +0.6°C. Average precipitation increased (38%) for the month of December and decreased (38%) for the month of July.

In the East Midlands serious floods occurred in Northampton in 1998, in the winter of 2000, and a dry summer in 2003 saw water resources under strain. February 2004 started with a record night-time temperature of 11.2°C and a mean daytime temperature of 12.5°C. Earlier reported migration of birds such as swallows and house martins reflect the trend of drier warmer summers.

The UK reduced its greenhouse gas emissions by 6% between 1990-1996 and further reductions of 8% are expected to be achieved by between 2008-2012¹²⁵ The East Midlands has implemented various initiatives to contribute to reductions mainly focused on improving energy efficiency, although it is not clear how much the East Midlands has contributed to the UK reduction.

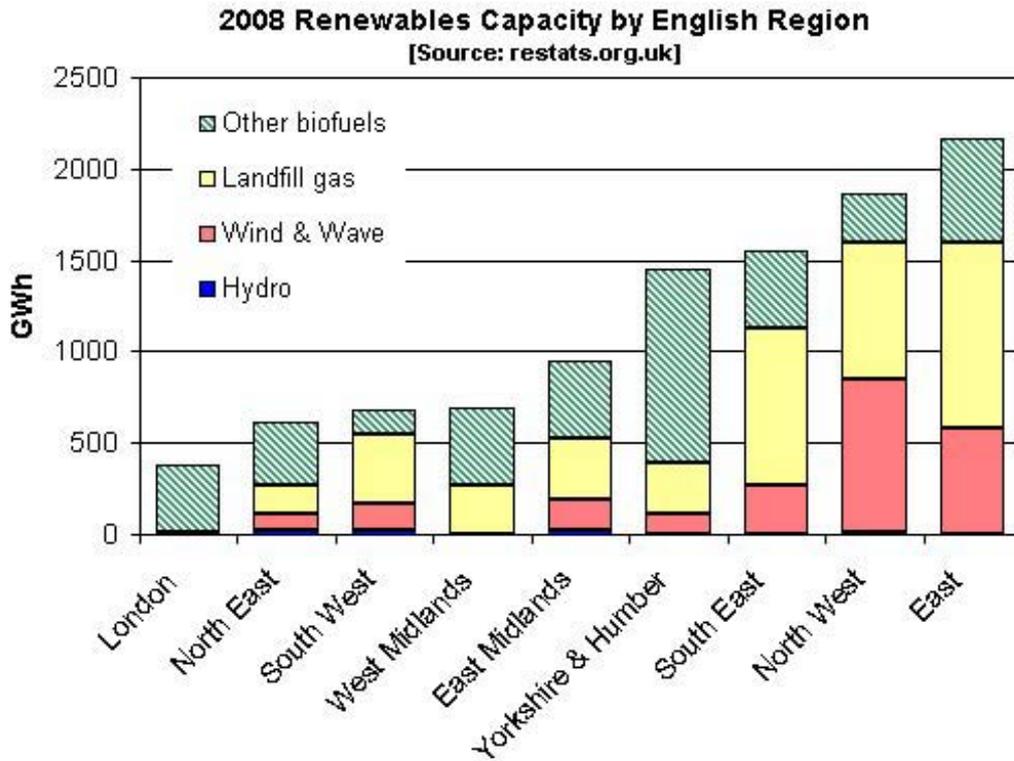
Renewable Energy

In 2010, there were 137 sites producing renewable energy (excluding photovoltaic solar energy) with installed capacity of 447.7MWe, compared to 99 sites with 402.6 MWe installed capacity. In 2010, the region had 17% of the national capacity of onshore wind power.

In addition there is 190MW renewable energy sources from two offshore wind farms in Greater wash Strategic Area (27 turbines each at Lynn and Inner Dowsing), and two more received consent (Sheringham Shoal and Lincolnshire). However, although it has clear carbon benefits and can displace fossil fuel consumption, offshore renewable energy development is posing environment challenges. With many consents situated close to protected areas of the North Norfolk Coast, cables going through sensitive communities which may impact on low biodiversity. For example laying cables may threaten the tern populations which fish along the Norfolk Coast.

In 2008, 947 Gigawatt Hours (GW h) of renewable energy were generated in the East Midlands out of the UK total of 21,578 GWh (**Figure 7.4**). The highest generation from an English region was East of England with 2,164 GWh.

Figure 7.4 Renewables Capacity by Region¹³⁶



In the East Midlands, the majority of energy is generated from fossil fuels, with the production of coal in Derbyshire, Leicestershire and Nottinghamshire amounting to 5.7 million tonnes in 1999. The region's coal-fired power stations account for approximately 10-15% of the UK's total generating capacity. Renewable energy accounted for less than 100MW of installed capacity in 2004, approximately 2% of the region's energy consumption. 'Towards a Regional Energy Strategy' estimates final energy consumption in the region will increase by over 15% by 2020.

The region is richly endowed in potential renewable energy resources – particularly offshore wind (which is now counted as a national resource). If all the accessible resources were to be built, almost half of the regional electricity consumption could be supplied by renewable energy. The East Midlands has the third lowest number of sites amongst all English regions generating electricity from renewable sources.

The region has a long history of harnessing wind for powering water pumps and mills. However, the East Midlands is one of the least windy parts of the country and there are few windfarms or large wind

¹³⁶ Environment Agency (2010) State of the Environment Report East Midlands http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_Climate_change.pdf

turbines within the region. There is only one project of significant scale in the region, site in Mablethorpe, Lincolnshire and combined with a smaller scheme at West Beacon Farm, these wind farms generate approximately 16 GWh/yr. However, three further substantial projects are under construction. These are Burton Wold Wind Farm, Gedney Marsh and Deeping St. Nicholas. These projects will generate an additional 126GWh/yr.

No offshore wind turbines have been built off the coast of Lincolnshire, although one project, Lynn and Dowsing (5km offshore of Skegness), has been given consent and will give an energy output of 473 GWh/yr. Centric has consent for a further three wind power developments, with a combined potential capacity of 3,300 GWh/yr¹⁴⁰. There are ten hydropower plants operating within the region, nine of which are in Derbyshire. The total capacity of the hydropower plants is nearly 3.04 MWe.¹⁴⁰ Very little new CHP has been installed in the East Midlands in recent years, mainly due to the widening gap between gas and electricity prices. There is only one energy from waste plant in the Region, located in Nottingham, burning a mixture of municipal solid waste and gas. The total capacity of this plant is 14.9MWe. There are four potential additional plants, two in Nottingham and two in Lincolnshire, with a total projected capacity of 35.5MWe. However, none of these schemes has submitted a planning application.

Many energy-related projects are planned or underway, particularly targeting energy efficiency and renewable energy. In some areas, particularly energy consumption, the East Midlands is ahead of many others in terms of the plans and targets it has in place.

The Plan may need to consider housing issues and energy efficiency within homes, from the point of view of delivering low carbon households and buildings. New housing stock in the region does not score well in terms of energy efficiency (11.6% of households in the East Midlands live in homes that are inefficient and expensive to heat, having a Standard Assessment Procedure (SPA) rating of 30 or below, compared with the regional average of 48.8). Average domestic consumption is 4,200 kWh/y, so the 1.9 million households in the East Midlands use around 8,000 GWh/y.

In terms of the capacity of additional Combined Heat and Power (CHP) Facilities¹³⁷ **Table 7.2** shows a comparison of the number of schemes and electrical capacity in the regions for the period 2007-2009. Over the period 2007-2009 the number of schemes in the UK has increased from 1,415 to 1,465. The same period saw an increase in capacity from 5,438 MWe to 5,569 MWe. Figures for the East Midlands show little change or a slight decline in the actual number of schemes and electricity capacity from 2007-2009 so that by 2009 there were 74 schemes generating 221 MWe. The regional target of 511 MWe by 2010 has therefore been missed by some distance and the target of 1,120 MWe by 2020 must be in doubt. The reasons for this are largely financial and will only be resolved when better funding or price regimes are in place.

¹³⁷ East Midlands Councils (2011) The East Midlands in 2009/10

Table 7.2 Change in Number of CHP Schemes and their Electrical Capacity in 2007-2009

	Number of Schemes			Electricity Capacity (MWe)		
	2007	2008	2009	2007	2008	2009
UK Total	1,415	1,437	1,465	5,438	5,494	5,569
England	1,216	1,227	1,242	4,761	4,792	4,837
East Midlands	79	74	74	237	239	221
East	79	81	86	248	249	254
London	161	163	161	205	201	198
North East	78	82	79	818	894	895
North West	190	193	195	847	842	774
South East	257	260	275	847	840	844
South West	100	103	100	61	61	54
West Midlands	127	127	125	109	98	94
Yorkshire & the Humber	145	144	147	1,388	1,368	1,502

The East Midlands is making considerable progress in generating electricity from renewable resources. In 2009, 1,594 GWh were generated from renewable sources compared to 645 GWh in 2005 (**Table 7.3**). The East Midlands has improved against other English regions and is currently the 4th largest supplier of renewable energy. Table 1.3 also compares the level of renewable energy generated with the level of energy consumption. In 2009, 7.5 per cent of the region's electricity consumption came from renewable sources, 3.8 per cent of which was from wind and wave generation.

Table 7.3 Comparison of Energy Consumption with Renewable Energy Generation in the East Midlands 2005 to 2009

	Electricity Consumption (GWh)	Renewable Energy Generated (GWh)	Percentage of Consumption from Renewable Generation	Wind Energy Generated (GWh)	Percentage of Consumption from Renewable Generation
2005	23,938	645	2.7	17	0.1
2006	23,499	664	2.8	81	0.3
2007	22,637	843	3.7	132	0.6
2008	22,276	947	4.3	177	0.8
2009	21,185	1,594	7.5	*798	3.8

* Includes wind and wave

Please note the data does include 190MW of offshore wind at Lynn and Inner Dowsing, which are not part of the regional targets

Source: Energy Trends and DTI Regional Energy Consumption Statistics

2009 data from Energy Trends gives a total renewables capacity in the East Midlands of 416.0MW which is more than double the capacity in 2008, partly due to a number of significant on and off-shore wind installations coming online in 2009 (**Table 7.4**). During 2010 further sites came on line including Rainworth near Mansfield which is the first wind farm in Nottingham, with a number of others getting planning permission.

Table 7.4 Installed Capacity in East Midlands of Sites Generating Electricity from Renewable Sources 2003 to 2009 (MW)

	Hydo	Wind/Wave	Landfill Gas	Other Bio Fuels	Total
2003	5.0	1.3	46.6	26.2	79.1
2004	5.0	#	54.4	15.0	74.4
2005	5.1	6.1	60.5	19.3	91.0
2006	5.1	54.6	55.7	31.7	147.1
2007	5.4	70.1	60.8	38.6	174.9
2008	5.4	70.1	60.8	43.5	179.8
2009	5.5	300.0	64.0	38.4	416.0

2004 wind/wave data not shown due to small number of sites

Please note the data does include 190MW of offshore wind at Lynn and Inner Dowsing, which are not part of the regional targets

Source: Energy Trends

7.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

7.4.1 National

UK

The main source for determining how the climate of the UK may change is the UK Climate Impacts Programme scenarios, published in 2009 and known as UKCP09. The UKCP09 findings indicate that all areas of the UK are getting warmer, and the warming is greater in summer than in winter. There is little change in the amount of precipitation (rain, hail, snow etc) that falls annually, but more is falling in the winter, with drier summers, for much of the UK. Sea levels are rising, and are greater in the south of the UK than the north¹³⁸.

¹³⁸ DECC (2007) http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/loc_reg_dev/ni185_186/ni185_186.aspx

The Climate Change Risk Assessment¹³⁹ (2012) outlines some of the most important risks and opportunities that climate change may present. It provides an indication of their potential magnitude, when they might become significant and the level of confidence in each finding. As well as the overall picture, specific findings are presented for five complementary themes: Agriculture & Forestry, Business, Health & Wellbeing, Buildings & Infrastructure and the Natural Environment. Key messages from the assessment include:

- Flood risk is projected to increase significantly across the UK. Increases in the frequency of flooding would affect people's homes and wellbeing, especially for vulnerable groups (e.g. those affected by poverty, older people, people in poor health and those with disabilities), and the operation of businesses and critical infrastructure systems. Annual damage to UK properties due to flooding from rivers and the sea currently totals around £1.3 billion. For England and Wales alone, the figure is projected to rise to between £2.1 billion and £12 billion by the 2080s, based on future population growth and if no adaptive action is taken.
- UK water resources are projected to come under increased pressure. This is a potential consequence of climate-driven changes in hydrological conditions, as well as population growth and the desire to improve the ecological status of rivers. By the 2050s, between 27 million and 59 million people in the UK may be living in areas affected by water supply-demand deficits (based on existing population levels). Adaptation action will be needed to increase water efficiency across all sectors and decrease levels of water abstraction in the summer months.
- Potentially, there are health benefits as well as threats related to climate change, affecting the most vulnerable groups in our society. These are likely to place different burdens on National Health Service (NHS), public health and social care services. For example, premature deaths due to cold winters are projected to decrease significantly (e.g. by between 3,900 and 24,000 by the 2050s) and premature deaths due to hotter summers are projected to increase (e.g. by between 580 and 5,900 by the 2050s). Other health risks that may increase include problems caused by ground-level ozone and by marine and freshwater pathogens.
- Sensitive ecosystems are likely to come under increasing pressure. Although some species could benefit, many more would be negatively impacted. These impacts would have knock-on effects on habitats and on the goods and services that ecosystems provide (e.g. regulating water flows, pollination services).

The UK is experiencing sea level rise of approximately 1mm per year. Global sea-level is rising at about 3mm per year¹⁴⁰. Central England's temperature has risen by about 0.7°C over the last century, with 2004 being the warmest on record¹⁴¹. Sea-surface temperatures around the UK coast have risen over

¹³⁹ Defra (2012) http://randd.defra.gov.uk/Document.aspx?Document=Summary_of_Key_Findings.pdf

¹⁴⁰ Defra, Environment in your Pocket Statistics, 2009, <http://www.defra.gov.uk/evidence/statistics/environment/eiyp/>

the past three decades by about 0.7°C. Global average temperatures are rising at about 0.2°C per decade. Severe windstorms around the UK have become more frequent in the past few decades, though not above that seen in the 1920s. Annual mean precipitation over England and Wales has not changed significantly since records began; however seasonal rainfall appears to be decreasing in summer and increasing in winter¹⁴⁰.

Key climate change include that the UK climate is warming and becoming more seasonal; climate changes are more pronounced in south-east of the UK compared to the north-west; sea levels are rising, and UK greenhouse gas emissions are falling with a target of an 80% cut in emissions by 2050 (compared to 1990 levels).

7.4.2 East Midlands

- Climate change: Global warming may have a significant impact on the air quality in the region. As air temperature rises, the level of pollution in the air increases accordingly.
- Climate change: Climate change is likely to cause reductions in water resources, problems with water quality due to declining summer flows, and increase flooding both from sea level rise and heavier storms. This is likely to have an impact on the region's biodiversity and historical heritage, health and its economy.
- Greenhouse gas emissions: Energy consumption is the main contributing factor to climate change due to the level of greenhouse gas emissions.
- Climate change: Severn Trent Water estimate that climate change could result in a further reduction of yields of the River Trent and the Derwent valley system.
- Climate change: This will greatly affect the region's agriculture – in terms of the type of crop grown and irrigation required.
- Lack of sites for renewable electricity generation: The number of sites generating electricity from renewable energy need to be increased if the region wants to expand its use of renewable sources.
- Resistance to new energy developments: There may be resistance to the development and siting of new forms of renewable energy developments.
- Reliance on coal-fired power: Reliance on coal-fired power may be at odds with the renewable energy objectives of the relevant plans and programmes.
- Energy consumption increases: Energy consumption in the area is predicted to increase by over

15% in the next 15 years, at the same time as CO₂ emissions are to be cut by 60% over the next 45 years. Increasing demand for energy may make the Climate Change UK Programme's targets unachievable.

- The East Midlands has a significant length of coastline, the specific geology of which makes it particularly vulnerable to erosion.

7.5 Likely Evolution of the Baseline

7.5.1 National

UK

There has been a steady decrease in the 6 greenhouses gases of the Kyoto basket since 1990. In 2009 566.3 million tonnes of CO₂ equivalent were emitted from the UK, which was a 27.2% decrease compared to volumes emitted in 1990 and a 8.2% decrease compared to values in 2008. However, provisional results for 2010 estimate 582.4 million tonnes of CO₂ equivalent were emitted giving an increase of 2.8% compared to 2009 values¹⁴².

UKCP09 provides the following prediction on changes to climate within the UK based on the medium emission scenario with 90% probability¹⁴³:

- **2080 mean winter temperature:** the central estimates of change are projected to be generally between 2 and 3°C across most of the country, with slightly larger changes in the south-east and slightly smaller in the north-west of Britain.
- **2080 mean summer temperature:** a more pronounced south to north gradient exists with changes in some parts of southern England being just over 4°C and in parts of northern Scotland about 2.5°C.
- **2080 mean summer daily maximum temperature:** central estimates show a gradient between parts of southern England, where they can be 5°C or more, and northern Scotland, where they can be somewhat less than 3°C.
- **2080 mean annual precipitation:** shows little change (few percent or zero);.
- **2080 mean winter precipitation:** increases are in the range +10 to +30% over the majority of the country. Increases are smaller than this in some parts of the country, generally on

¹⁴² DECC (2011) 2010 Provisional GHG emissions
http://www.decc.gov.uk/publications/basket.aspx?filetype=4&filepath=Statistics%2fclimate_change%2f1514-ghg-emissions-provisional-2010.xls&minwidth=true#basket

¹⁴³ UKCP09 <http://ukclimateprojections.defra.gov.uk/content/view/515/499/>

higher ground.

- **2080 mean summer precipitation:** general south to north gradient, from decreases of almost 40% in SW England to almost no change in Shetland.
- The range of absolute sea level rise around the UK (before land movements are included) and across the three emissions scenarios is projected to be between 12 and 76 cm for the period 1990–2095, which is a wider spread than that of the global average.
- The projected long-term future trends in storm surge that we find in UKCP09 are physically small everywhere around the UK, and in many places can be accounted for by natural variability. The surge level we expect to be exceeded on average once in 2, 10, 20 or 50 yr is not projected to increase by more than 9 cm by 2100 anywhere around the UK coast (not including the mean sea level change). The largest trends are found in the Bristol Channel and Severn Estuary.
- Seasonal mean and extreme waves are generally expected to increase to the South West of the UK, reduce to the north of the UK and experience a small change in the southern North Sea. Changes in the winter mean wave height are projected to be between –35 and +5 cm. Changes in the annual maxima are projected to be between –1.5 and +1 m.

The Climate Change Act 2008 was passed in November 2008 and creates a new approach to managing and responding to climate change in the UK. This includes putting in place legally binding targets with the aim of reducing emissions by at least 80% by 2050 (compared to 1990 levels) and a set of five-year carbon budgets (legally binding limits on the total quantity of greenhouse gas emissions that the country produces over a five year period) to 2022. Included within the Fourth Carbon Budget the Committee on Climate Change is the recommendation for an indicative 2030 target to reduce emissions by 60% relative to 1990 levels (46% relative to 2009 levels)¹⁴⁴.

The Carbon Plan 2011 explains that if the UK is to cut emissions by 80% by 2050, there will have to be major changes in how energy is generated and used. Energy efficiency will have to increase dramatically across all sectors. The oil and gas used to drive cars, heat buildings and power industry will, in large part, need to be replaced by electricity, sustainable bioenergy, or hydrogen. Electricity will need to be decarbonised through renewable and nuclear power, and the use of carbon capture and storage (CCS). The electricity grid will be larger and smarter at balancing demand and supply. In the next decade, the UK is expected to complete the installation of proven and cost effective technologies that are worth installing under all future scenarios. All cavity walls and lofts in homes, where practicable, are expected to be insulated by 2020. The fuel efficiency of internal combustion engine cars will improve dramatically, with CO₂ emissions from new cars set to fall by around a third. Many of our existing coal-fired power stations will close, replaced primarily by gas and renewables. More efficient buildings and cars will cut fuel costs. More diverse sources of electricity will improve energy security and reduce

¹⁴⁴ Committee on Climate Change (2010) Fourth Carbon Budget, <http://www.theccc.org.uk/reports/fourth-carbon-budget>

exposure to fossil fuel imports and price spikes. As part of this, the UK is committed to delivering 15% of its energy from renewable sources by 2020.

England

In 2009 England's emissions of the basket of six greenhouse gases covered by the Kyoto Protocol were provisionally estimated to be 436 million tonnes CO₂ equivalent which is a 29.5% decrease compared to emissions in 1990¹⁴⁵.

UKCP09 provides the following changes in climate for England in 2080 based on a medium emission scenario with 90% probability¹⁴⁶:

- **2080 mean winter temperature:** a change in temperature from 4.0°C in the Northwest to 4.7°C in the South and East of England.
- **2080 mean summer temperature:** a change in temperature from 5.4°C in Yorkshire to 6.5°C in the South East.
- **2080 mean winter precipitation:** increases are in the range 41% in the East Midlands to 54% in the South West.
- **2080 mean summer precipitation:** no change is expected in Yorkshire to a 7% increase in the South East and London.

England shares the same targets related to climate change and energy use as the rest of the UK. Although there are additional targets on a regional and local authority level contained within strategies there are too many to mention for the purposes of this report.

7.5.2 East Midlands

According to the Environment Agency's state of the environment report for the East Midlands Region, local predictions for climate changes in the 2080's include:

- hotter summers (mean temperatures likely to increase between 1.9°C and 5.9°C);
- drier summers (precipitation changes between +6% and -45%);
- warmer winters (mean temperatures likely to increase between 1.6 °C and 4.7°C);
- wetter winters (precipitation likely to increase between 4% and 44%); and

¹⁴⁵ National Atmospheric Emissions Inventory , Devolved Administration End User GHG Emissions Data http://uk-air.defra.gov.uk/reports/cat07/1109061103_DA_GHGI_report_2009_Main_text_Issue_1.pdf

¹⁴⁶ UKCP09 <http://ukclimateprojections.defra.gov.uk/content/view/515/499/>

- sea level could rise by 18 - 37 cm in some areas by 2080.
- Availability of water resources, especially in the East Midlands (Derbyshire, Leicestershire, and Nottinghamshire) and Lincolnshire Fens water resource zones.
- Coastal change including habitat loss is a significant threat.
- The achievement of air quality and greenhouse emissions targets, especially with respect to transport.
- Flood risk in the Southern and Three Cities Sub-Areas, and possibly parts of the coast.

7.6 Assessing significance

Table 7.5 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on climate change. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 7.5 Approach to determining the significance of effects on climate change and energy use

Effect	Description	Illustrative Guidance
++	Significant positive	<ul style="list-style-type: none"> • Alternative would have a significant and sustained positive impact on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species) • Alternative would have a strong positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function). • Alternative will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to such sites.
+	Positive	<ul style="list-style-type: none"> • Alternative would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species). • Alternative may have a positive net effect on local biodiversity (e.g. – through reduction in disturbance/pollutant emissions, or some habitat creation leading to temporary improvement to ecosystem structure and function). • Alternative will enhance existing public access to areas of wildlife interest in areas where there is some demand for such sites.
0	No (neutral effects)	<ul style="list-style-type: none"> • Alternative would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species). • Alternative would not affect public right of way or access to areas of wildlife interest.
-	Negative	<ul style="list-style-type: none"> • Alternative would have minor residual impact on European or national designated sites and/or protected sites (e.g. – prevents reaching one of the conservation objectives on site, short term decrease in population of designated species). These impacts could not be effectively avoided but could be effectively compensated for. • Alternative would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through a minor increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function). • Alternative will decrease public access to areas of wildlife interest in areas where there is some demand for such sites.

Effect	Description	Illustrative Guidance
--	Significant negative	<ul style="list-style-type: none"> Alternative would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for. Alternative would have strong negative effects on local biodiversity (e.g. – through an minor increase in disturbance/pollutant emissions, or considerable loss of habitat leading to long term loss of ecosystem structure and function).
?	Uncertain	<ul style="list-style-type: none"> From the level of information available the impact that the Alternative would have on this objective is uncertain.

7.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 7.6 summarises the significant effects identified in the detailed assessment of the East Midlands Regional Plan policies against the climate topic. The potential significant effects are wide-ranging, relating to policies primarily dealing with the natural environment where additional habitats could help to mitigate some of the effects of climate change. By contrast, regional airport expansion could have significant negative effects. Policy revocation and retention are broadly similar in effects.

Table 7.6 Significant effects against the climate topic

Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
29. Priorities for Enhancing the Region's Biodiversity	Revocation	+	++	++	This policy seeks to deliver a step-change in the extent and condition of biodiversity across the region. In combination with other policies relating to woodland creation, for example, the result could be climate change mitigation in both urban and rural areas through CO2 absorption, shading and flood alleviation, for example. Revocation could slow the pace and effectiveness of this aspiration.
	Retention	+	++	++	
30. Regional Priorities for Managing & Increasing Woodland Cover	Revocation	+	++	++	This policy seeks to deliver a step-change in the extent and condition of woodlands cover across the region. In combination with other policies relating to biodiversity, for example, the result could be climate change mitigation in both urban and rural areas through CO2 absorption, shading and flood alleviation, for example. Revocation could slow the pace and effectiveness of this aspiration.
	Retention	+	++	++	
31. Priorities for the Management and	Revocation	+	++	++	This policy seeks to deliver a protect and enhance all landscapes across the region. In combination with other policies relating to

Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
Enhancement of the Region's Landscape	Retention	+	++	++	biodiversity and woodland, for example, the result could be climate change mitigation in both urban and rural areas through CO2 absorption, shading and flood alleviation, for example.
39. Regional Priorities for Energy Reduction and Efficiency	Revocation	+	++	++	The policy promotes energy efficiency which will have long term positive effects but can be readily implemented at local level.
	Retention	+	++	++	
40. Regional Priorities for Low-Carbon Energy Generation	Revocation	+	++	++	This detailed policy should lead to long term benefits, but the same outcome could probably be achieved at the local level using national guidance on the development of renewables.
	Retention	+	++	++	
56. Regional Priorities for Air Transport	Revocation	0	--	--	This policy seeks further expansion of East Midlands Airport. Both in terms of the impact of aircraft movements on CO2 emissions and access to the airport by car, significant negative effects are expected over the medium and longer term. Airport expansion is likely both with and without the policy.
	Retention	0	--	--	

7.7.1 Effects of Revocation

Climate change could significantly affect the East Midlands because of the extent of its coastline and its low lying geography. Coastal and riverine flooding is already an issue in the region. The region also has some of the hottest summers in the UK, and in the longer term, if temperatures increase as predicted, the urban heat island effect could become increasingly significant if not adequately managed.

There are two key aspects to climate change considered in this assessment. The first is the extent to which the region contributes to global emissions of greenhouse gases. The second is the extent to which the plan facilitates adaptation and mitigation of the impacts of climate change. Growth of housing, transport movement, waste generation and energy use are likely to mean that the implementation of the Plan would lead to a (cumulative) increase in carbon dioxide emissions in the region.

The Climate Change Act 2008 as explained above creates a new approach to managing and responding to climate change in the UK. This includes putting in place legally binding targets with the aim of reducing emissions by at least 80% by 2050 (compared to 1990 levels) and a set of five-year carbon budgets (legally binding limits on the total quantity of greenhouse gas emissions that the country produces over a 5 year period) to 2022. In addition, the Carbon Plan 2011 explains that there will have to be major changes in how energy is generated and used. Energy efficiency will have to increase dramatically across all sectors (see above). Including through more efficient buildings and cars. The

planning system will have an important, but not necessarily leading, role in taking this forward. Revocation of the plan and the removal of regional policies are unlikely to have any material effects. While the requirement in policy ENG2 is for 17% of the region's energy to come from renewable on-shore sources by 2020, would be replaced by the national target of 15% following revocation of the regional strategy, given the amount of off-source wind energy associated with the region, this reduction is not considered likely to materially affect climatic change of the achievement of the longer term targets.

One of the 12 core principles of planning set out in paragraph 17 of the NPPF is to support the transition to a low carbon future, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy). Similarly, paragraph 94 of the NPPF states that local planning authorities should adopt proactive strategies to mitigate and adapt to climate change in line with the provisions of the Climate Change Act 2008.

The NPPF seeks to support the move to a low carbon future, by stating that local planning authorities should plan for new development in locations and ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings; and when setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards. Specifically, local planning authorities are expected to identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supplies.

Following revocation of regional strategies, local authorities will be expected to continue to work together across administrative boundaries and with the Environment Agency to plan development that properly minimises the effects of climate change, particularly from flooding and coastal change. For flooding matters, local authorities already have a duty to cooperate under the Floods and Water Management Act 2010. This contains provisions that cover regional working and co-operation such as the establishment of Regional Flood and Coastal Committees and the bringing together of lead local flood authorities (unitary and county councils), who will have a duty to cooperate, to develop local strategies for managing local flood risk. In addition, the Flood Risk Regulations 2009 imposes a duty on the Environment Agency and lead local flood authorities to determine whether a significant flood risk exists in an area and if so to prepare flood hazard maps, flood risk maps and flood risk management plans.

7.7.2 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies and retaining the non spatial policies; or
- Retention of policies, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on air quality associated with the revocation of policies are summarised in **Table 7.6**. The principal issue concerns promotion of the expansion of the capacity of the East Midlands Airport and its likely effect on climate change both within and beyond the region. This is likely to be applicable in the medium and longer term and be associated with both increased flights and physical expansion (albeit within the current boundaries of the airport).

The assessment has found that there are no policies in the East Midlands Regional Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

7.7.3 Effects of Retention

Retaining the regional strategy would see continuation of the baseline identified above. The more recent legislative and national policy requirements which have come into effect since the regional strategy was adopted would in most cases steer development choices in the region, particularly as the regional strategy became more out of date.

7.8 Mitigation Measures

No mitigation measures were identified as revocation would not have a significant impact on climatic factors.

8. Material Assets

8.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals on revoking the regional strategies on material assets including waste and minerals. Information is presented for both national and regional levels.

Waste management in this context is defined as the processing, recycling or disposal of a range of waste types including municipal, commercial and industrial, construction, excavation and demolition and hazardous wastes. However, it is important to note that consideration of the management of waste links to a number of other SEA topics, the most relevant being climate change and adaptation given the potential for waste to be recovered for energy use.

8.2 Summary of Plans and Programmes

8.2.1 International

The **Waste Framework Directive** (75/442/EEC as amended by 91/156/EEC, 91/92/EEC and 2008/98/EC) provides the overarching framework for waste management at the EU level. It relates to waste disposal and the protection of the environment from harmful effects caused by the collection, transport, treatment, storage and tipping of waste. In particular, it aims to encourage the recovery and use of waste in order to conserve natural resources. The key principles of the Directive include the 'Waste Management Hierarchy' which stipulates waste management options based on their desirability. In order, these are: prevention; preparing for re-use; recycling; other recovery, e.g. energy recovery; and disposal. Key objectives are to reduce the adverse impacts of the generation of waste and the overall impacts of resource use. This should be done through a variety of mechanisms, including:

- by 2020 requiring member states to recycle 50% of their household waste and 70% of their non-hazardous construction and demolition waste;
- applying the waste hierarchy - promoting waste minimisation followed by reuse and recycling, other recovery (such as energy recovery) and disposal - as a priority order in waste prevention and management legislation and policy;
- ensuring that four specified materials (paper, metal, plastics and glass) are collected separately by 2015,
- taking measures as appropriate to promote the re-use of products and preparing for re-use activities; and

- extending the self-sufficiency and proximity principles to apply to installations for recovery of mixed municipal waste from households.

The Directive was transposed into English legislation through the Waste (England and Wales) Regulations 2011 (SI2011 No.988).

A compromise agreement was reached between the Council of Environment Ministers and the European Parliament in June 2008 on revisions to the Waste Framework Directive. Once formally adopted, these will come into force in 2010. The main changes include EU-wide targets for reuse and recycling 50% of household waste by 2020, and for reuse, recycling and recovery of 70% of construction and demolition waste by 2020. In this context, the **Landfill Directive** (European Commission, 1999) focuses on waste minimisation and increasing levels of recycling and recovery. The overall aim of the Directive is to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air and on the global environment, including the greenhouse effect as well as any resulting risk to human health from the landfilling of waste, during the whole lifecycle of the landfill. The Directive sets the target of reducing biodegradable municipal waste landfilled to 35% of that produced in 1995 by 2020.

There are a number of **Producer Responsibility Directives** relating specifically to consumer products. Their purpose is to require businesses to reuse, recover and recycle waste which comes from products they produce, and each Directive sets national targets for recovery and recycling of these wastes.

The **EU Thematic Strategy on the Prevention and Recycling of Waste (2002-2012)** is a long-term strategy aims to help Europe become a recycling society that seeks to avoid waste and uses waste as a resource.

The **Basel Convention** came into force in 1992 and is a global agreement, ratified by several member countries and the European Union, for addressing the problems and challenges posed by hazardous waste. The key objectives of the Basel Convention are:

- to minimise the generation of hazardous wastes in terms of quantity and hazardousness;
- to dispose of them as close to the source of generation as possible; and
- to reduce the movement of hazardous wastes.

8.2.2 National

UK

Environmental Permitting (England and Wales) Regulations (2010) SI 675 provides a system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also sets out the powers, functions and duties of the regulators.

England

The **Waste Strategy (2007)** translates the principles of the previous EU Waste Framework Directive into UK policy. Its key objectives include:

- Decoupling waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use.
- Meeting and exceeding the Landfill Directive diversion targets for biodegradable municipal waste in 2010, 2013 and 2020.
- Increase diversion from landfill of non-municipal waste and secure better integration of treatment for municipal and non-municipal waste.
- Secure the investment in infrastructure needed to divert waste from landfill and for the management of hazardous waste.
- Get the most environmental benefit from that investment, through increased recycling of resources and recovery of energy from residual waste using a mix of technologies.

The Strategy sets national targets for:

- Reducing the amount of household waste that is not either re-used, recycled or composted.
- Recycling and composting of household waste – at least 40% by 2010, 45% by 2015 and 50% by 2020.
- Recovery of municipal waste – 53% by 2010, 67% by 2015 and 75% by 2020.

The Coalition Government carried out a **National Review of Waste Policy in England (2011)**, looking at the most effective ways of reducing waste, maximising the money to be made from waste and recycling and considering how waste policies affect local communities and individual households. The report set out a number of 'Principal Commitments' which aims to achieve a more sustainable approach to the use of materials, deliver environmental benefits and support economic growth. These include:

- promoting resource efficient product design and manufacture and target those waste streams with high carbon impacts, both in terms of embedded carbon (food, metals, plastics, textiles) and direct emissions from landfill (food, paper and card, textiles, wood);
- promoting the use of life cycle thinking in all waste policy and waste management decisions and the reporting of waste management in carbon terms, as an alternative to weight-based measures;
- developing a comprehensive Waste Prevention Programme and in the meantime will work with businesses and other organisations across supply chains on a range of measures designed to drive waste reduction and re-use as part of a broader resource efficiency programme; and

- continue to help local communities develop fit for purpose local solutions for collecting and dealing with household waste and work with councils to meet households' reasonable expectations for weekly collections, particularly of smelly waste.

Defra's ***Strategy for Hazardous Waste Management in England (2010)*** sets out the following principles for hazardous waste management:

- waste hierarchy;
- infrastructure provision;
- reduce our reliance on landfill;
- no mixing or dilution;
- treatment of hazardous organic wastes; and
- end reliance on the use of Landfill Directive waste acceptance criteria derogations.

PPS10: Planning for Sustainable Waste Management (2005) sets out the national planning framework in relation to waste. It states that planning has a key role in delivering sustainable waste management through both the development of appropriate strategies for growth, regeneration and the prudent use of resources and by providing sufficient opportunities for the development of new waste management facilities. PPS10 states that:

- Waste planning authorities should identify in their plans (development plan documents) sites and areas suitable for new or enhanced waste management facilities for the waste management needs of their area. Development plans form the framework within which decisions on proposals for development are taken.
- The regional planning body should convene a broadly-based 'Regional Technical Advisory Board' (RTAB) to provide advice on the preparation of the strategy for waste management in the Regional Spatial Strategy and its implementation. PPS10 sets out the role and composition of a RTAB - it should be broadly based drawing from those with a direct interest in and knowledge of sustainable waste management.
- In deciding which sites and areas to identify for such facilities, waste planning authorities should assess their suitability against criteria set out in PPS10. This includes the physical and environmental constraints on development and the cumulative effect of previous waste disposal facilities on the well-being of the local community.
 - The ***Natural Environment White Paper (2011)*** sets out the ambition that the use of peat will be reduced to zero in England by 2030. This will contribute to the protection of important lowland peat habitats (both here and overseas) and significant carbon stores, and will promote a shift towards the greater use of waste-derived and by-product materials. It also

sets ambitious targets for reducing use within individual sectors, to drive action and provide clarity about the long-term direction of policy.

- The **Resource Security Action Plan (2012)** provides a framework for business action to address risks about the availability of some non-renewable raw materials (including minerals), and sets out high level actions to build on the developing partnership between Government and businesses to address resource concerns. This Action Plan emphasizes the need to make best use of resources currently in use, reducing as far as practicable the quantity of material used and waste generated, and using as much recycled and secondary material as possible, before securing the remainder of material needed through new primary extraction.
- With the exception of PPS10 which will remain in place until the National Waste Management Plan is published, the **National Planning Policy Framework (2012)** has replaced Planning Policy Statements, Planning Policy Guidance notes, Minerals Planning Statements, Minerals Planning Guidance and some Circulars. It sets out the Government's planning policies for England and how these are expected to be applied including in plan making and decision-taking on planning applications.
- The Framework expects local planning authorities to set out the strategic priorities for the area in the local plan and include strategic policies to deliver the provision of infrastructure for waste management and the provision of minerals. In doing so, they should work with other relevant organisations and providers to assess the quality and capacity of infrastructure for waste and its ability to meet forecast demands. Specifically, minerals planning authorities are expected to develop and maintain an understanding of the mineral resource in their areas and assess the projected demand for their use, taking full account of opportunities to use materials from secondary and other sources which could provide suitable alternatives to primary materials.
- In order to facilitate the sustainable use of minerals, the Framework sets out a number of expectations relating to specific minerals for local authority plan-making and decisions on planning applications. In doing so the Framework it includes safeguards so as to ensure permitted operations do not have unacceptable adverse impacts on the natural and historic environment or human health.

8.2.3 East Midlands

There are five waste and minerals planning authorities in the region who are preparing core strategies following publication of the Regional Strategy in 2008. Such plans include aims to progressively reduce the amount of waste which goes to landfill, achieve self-sufficiency in managing local wastes; and provide alternative waste management treatment facilities to landfill.

8.3 Overview of the Baseline

8.3.1 National

UK

In 2004, total UK non-radioactive waste arisings were around 335 million tonnes. Of this 32% was construction and demolition waste; 29% was mining and quarrying waste; 13% was industrial waste; 12% was commercial waste; 9% was household waste; 5% was dredging waste; and agricultural and sewage wastes made up for less than 1% each. Commercial and industrial waste arisings were therefore around 0.84 million tonnes in 2004. In 2007, 73 million tonnes of waste were sent to landfill (a decrease of 19.5% since 2002). The amount of waste recycled or composted has increased accounting for 34% of waste in 2007/08¹⁴⁷.

In 2002, 41% of commercial and industrial waste arisings were landfilled; 33% were recycled; 9% were reused; 4% were treated; 4% were thermally treated; 4% were unrecorded; 3% went to land recovery; 2% were transferred; and 1% was unsampled¹⁴⁸.

The total hazardous waste produced in UK in 2009 was 4,437,212 tonnes¹⁴⁹.

England

In 2004, total non-radioactive waste arisings in England were around 272,000,000 tonnes. Of this 32% was construction and demolition waste; 30% was mining and quarrying waste; 13% was industrial waste; 11% was commercial waste; 9% was household waste; 5% was dredged material; and agricultural and sewage wastes made up for less than 1% each¹⁵⁰.

The generation of household waste continued to decrease between the financial years 2009/10 and 2010/11, with a 0.9 per cent reduction to 23.5 million tonnes. This continues the slowing in a reduction of household waste since 2007/08.¹⁵¹

¹⁴⁷ Defra, Sustainable Development Indicators in your Pocket 2009,

http://www.defra.gov.uk/sustainable/government/progress/documents/SDIYP2009_a9.pdf

¹⁴⁸ Defra, edigest waste statistics,

<http://www.defra.gov.uk/environment/statistics/waste/wrindustry.htm>

¹⁴⁹ Environment Agency 2009 Hazardous Waste Arisings figures, http://www.environment-agency.gov.uk/static/documents/Research/EWHaz09_Final.xls

¹⁵⁰ Waste Strategy for England 2007, Defra,

<http://www.defra.gov.uk/environment/waste/strategy/strategy07/documents/waste07-strategy.pdf>

¹⁵¹ http://www.defra.gov.uk/statistics/files/mwb201011_statsrelease_v2.pdf

Waste to landfill has decreased minimally between 2009 and 2010. It fell by less than two per cent between 2009 and 2010 and has fallen by around 46 per cent since 2000. One of the principal reasons is the implementation of the Landfill Directive. Many older landfill sites that did not meet the stringent requirements of the Directive had to close by July 2009 at the latest and diversion targets for biodegradable municipal waste to landfill increase year on year. Also the slow down in economic growth in 2010 is associated with the minimal decrease in waste generated.¹⁵²

The proportion of household waste sent for recycling, composting or reuse between April 2010 to March 2011 in England was 41.5 per cent, increasing from 39.7 per cent in the year April 2009 and March 2010.

A total of 47.9 million tonnes of commercial and industrial (C&I) waste were generated in England in 2009, a decrease from 67.9 million tonnes in 2002-3. C&I waste was roughly evenly split between the commercial and industrial sectors.

During 2010 in England and Wales over 3.7 million tonnes of hazardous waste were managed, generated from nearly 160,000 businesses and industry, with:

- 14 per cent landfilled;
- 25 per cent transferred, before final disposal or recovery;
- 21 per cent treated;
- 30 per cent recycled, recovered or re-used;
- 9 per cent incinerated.

This compared to the total hazardous waste produced in England alone in 2009 was 4,095,477 tonnes.¹⁵³

8.3.2 East Midlands

Waste

Key facts relating to waste in the East Midlands are:¹⁵⁴

¹⁵² <http://www.environment-agency.gov.uk/research/library/data/132641.aspx>

¹⁵³ Environment Agency 2009 Hazardous Waste Arisings figures, http://www.environment-agency.gov.uk/static/documents/Research/EWHaz09_Final.xls

¹⁵⁴ East Midlands Councils (2011) The East Midlands in 2009/10

- Landfill capacity for waste in the East Midlands fell from over 87 million cubic metres in 2007 to under 68 million cubic metres by 2009
- During 2009/10, 2.3 million tonnes of municipal waste was collected in the East Midlands. 2.1 million tonnes of this was household waste
- Regional household waste sites received 622 thousand tonnes of waste in 2009/10
- Data on commercial and industrial waste for 2006/07 and 2009 show a small increase of 2.4 per cent in commercial and industrial waste arisings
- A total of 463 thousand tonnes of hazardous waste was disposed of in the East Midlands in 2009, 40 per cent of which went for recycling or reuse
- Household recycling rates have risen consistently since 2000/01 from 13% to over 45% in 2009/10. This is consistently above the national average.
- Currently 44.2 per cent of municipal waste in the East Midlands is recycled or composed and 48.1 per cent goes to landfill

According to the Environment Agency State of the Environment Report¹⁵⁵, the East Midlands produced over 2.4 million tonnes of municipal waste in 2008, including 2.1 million tonnes of household waste. The latest commercial and industrial waste data showed the East Midlands produced 6.2 million tonnes of this waste type. In 2008, 5.5 million tonnes of waste was disposed of in landfill sites, with five million tonnes of waste going to waste transfer and treatment facilities. A further one million tonnes was sent to metal recycling sites. Waste going for treatment has increased by 135 per cent to over 2.0 million tonnes. At the end of 2008 the East Midlands had landfill capacity of over 69 million cubic metres. At current rates of disposal, this is only enough for another seven years. Nearly 0.4 million tonnes of waste was incinerated at permitted facilities in the East Midlands in 2008, 42 per cent of which was municipal waste. In 2008, 43 per cent of municipal waste was recycled and/or composted. Since 2001 the East Midlands has seen household waste recycling rates increase by 29 per cent, and the amount of municipal waste going to landfill fall by 28 per cent. Inputs into waste treatment sites have increased by 135 per cent to over two million tonnes, with the amount of waste going through waste transfer facilities up by 48 per cent since 2001 (**Figure 8.1, Table 8.1, Figure 8.2, Table 8.2, Figure 8.3 and Table 8.3**).

¹⁵⁵ http://www.environment-agency.gov.uk/static/documents/Research/MIDS_SOE_East_WARM.pdf

Figure 8.1 East Midlands waste deposit trends 2001 to 2008

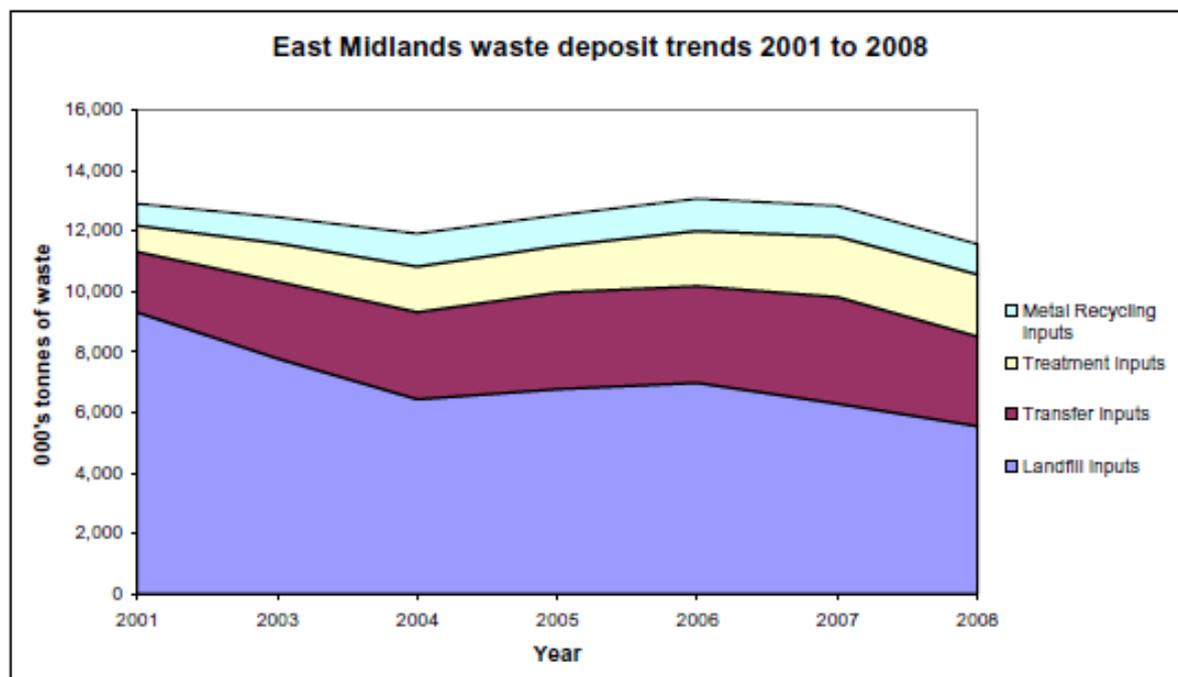
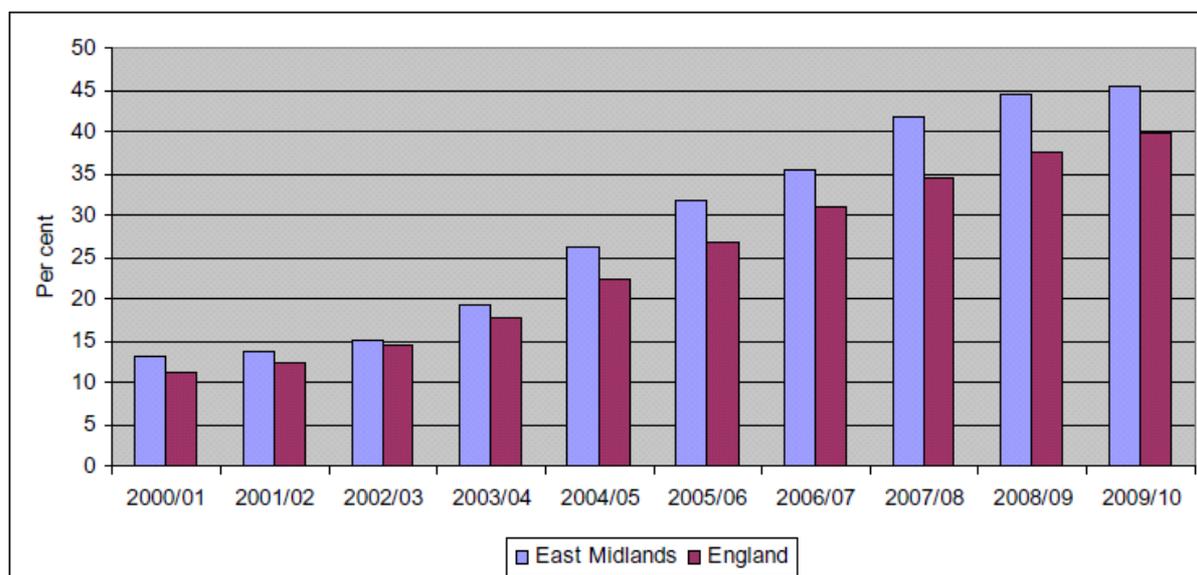


Table 8.1 Municipal and Household Waste 2009/10

	Total Municipal Waste (tonnes)	Total Household Waste (tonnes)	Household Waste (kg per head)
Derby City	127,527	110,659	464
Derbyshire	393,454	361,209	473
Leicester City	129,823	113,900	389
Leicestershire	353,293	320,183	497
Lincolnshire	355,978	336,893	486
Northamptonshire	358,260	333,856	483
Nottingham City	158,749	118,526	410
Nottinghamshire	411,125	378,508	490
Rutland	21,175	19,955	519

Source: Defra

Figure 8.2 Household Waste Recycling Rates



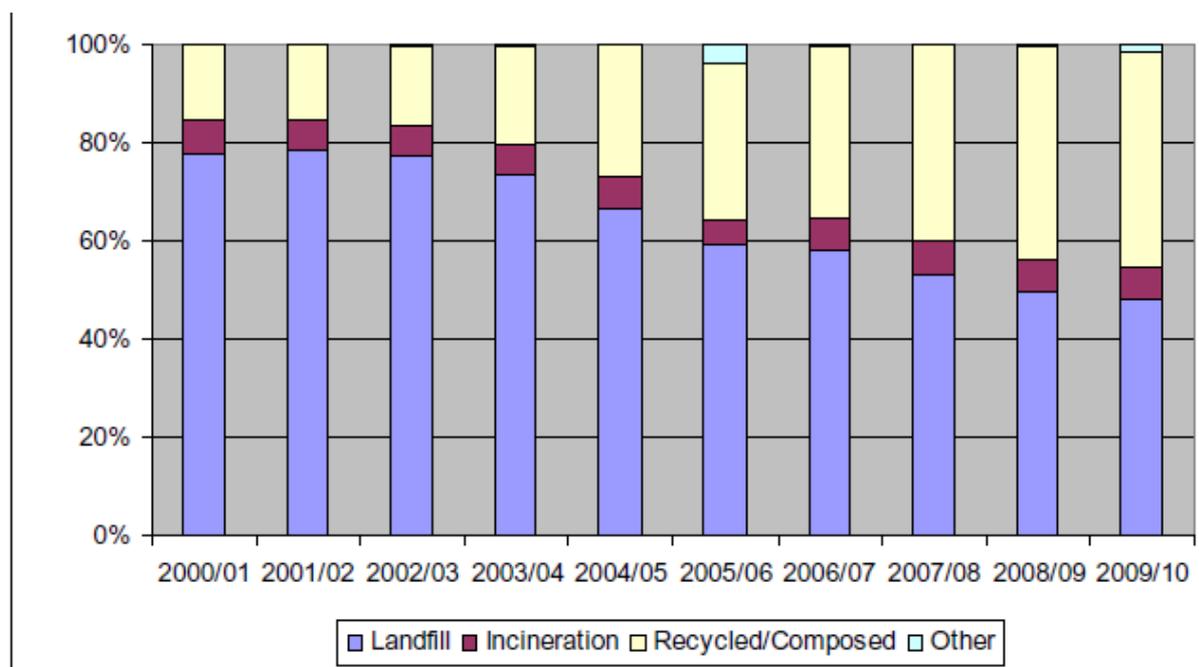
Source: defra

Table 8.2 Household Waste Recycling and Composting Rates 2006/07 to 2009/10 (per cent)

	2006/07	2007/08	2008/09	2009/10
Derby City	32.7	40.6	43.7	44.7
Derbyshire	31.6	37.3	41.3	42.1
Leicester City	27.2	33.5	30.6	40.0
Leicestershire	42.5	48.4	52.0	52.6
Lincolnshire	40.3	50.6	50.8	51.4
Northamptonshire	39.3	42.3	46.0	45.4
Nottingham City	23.8	29.0	32.5	35.5
Nottinghamshire	37.8	39.3	41.6	42.6
Rutland	24.2	28.8	52.9	55.8

Source: Defra

Figure 8.3 Municipal Waste Disposal in the East Midlands



Source: defra

Table 8.3 Proportion of Municipal Waste Sent to Landfill 2006/07 to 2009/10 (per cent)

	2006/07	2007/08	2008/09	2009/10
Derby City	66.2	58.6	60.0	54.3
Derbyshire	69.6	63.4	60.6	59.1
Leicester City	64.5	56.9	54.4	54.9
Leicestershire	60.6	55.8	50.5	47.3
Lincolnshire	60.6	50.2	48.8	48.1
Northamptonshire	63.7	60.2	53.8	52.1
Nottingham City	25.5	18.6	19.9	20.5
Nottinghamshire	49.4	46.9	44.5	44.9
Rutland	71.7	67.0	45.4	42.1

Source: defra

In terms of future trends, landfill capacity for the East Midlands has fallen from over 87 million cubic metres in 2007 to under 68 million cubic metres in 2009 (**Table 8.4 and 8.5**).

Table 8.4 Waste Capacity in 2005 and Projected 2020 Levels in the East Midlands* (thousand tonnes)

	Capacity	Recycling/ Composting	Landfill Diversion	Re-use	Disposal	Total
Municipal Solid Waste	Existing 2005	595	260	0	1,711	2,566
	Requirement 2020	1,480	840	0	640	2,960
Total	Existing 2005	3,031	1,907	926	5,583	12,447
	Requirement 2020	9,621	840	4,342	7,352	22,155

* Includes the whole of the Peak District National Park

Source: Waste Planning Guidance for EMRA, SLR Consulting Ltd (August 2006)

Table 8.5 East Midlands Landfill Capacity Trends 2000/01 to 2009 (thousand cubic metres)

	2000/01	2004	2005	2006	2007	2008	2009
Derbyshire	22,938	17,560	16,992	17,626	25,215	12,569	12,138
Leicestershire	15,929	15,922	14,686	15,569	14,246	11,979	12,381
Lincolnshire	15,267	18,513	18,562	16,276	28,983	27,666	28,315
Northamptonshire	20,263	8,284	8,412	7,411	8,035	7,311	6,509
Nottinghamshire	15,463	11,585	10,539	9,482	10,916	9,992	8,338
East Midlands	89,860	71,865	69,190	66,365	87,395	69,516	67,681

Source: Environment Agency

Minerals

For minerals, key facts for the East Midlands are¹⁵⁶

- By the end of 2009, total rock reserves for aggregate purposes in the East Midlands were 1,304 million tonnes and sand and gravel reserves for aggregate purposes stood at 81 million tonnes
- During 2009 a total of 22 million tonnes of rock was sold for aggregate use, alongside sales of 6 million tonnes of sand and gravel
- Limestone/dolomite reserves for aggregate purposes show little change since 2005 so that by the end of 2009 reserves stood at 982.6 million tonnes
- During 2009 a total of 22 million tonnes of rock was sold for aggregate use, alongside sales of 6 million tonnes of sand and gravel (**Table 8.6**).

¹⁵⁶ East Midlands Councils (2011) The East Midlands in 2009/10

Table 8.6 Sales and Reserves for Aggregates 2009*

	Rock Sales 2009 (million tonnes per annum)	Rock Reserves 2009 (million tonnes) for aggregate purposes	Sand and Gravel Sales 2009 (million tonnes per annum)	Sand and Gravel Reserves 2009 (million tonnes)
Derbyshire**	7.4	808.8	0.9	9.9
Leicestershire	11.7	338.8	0.8	12.8
Lincolnshire	0.5	41.3	2.0	22.8
Northamptonshire	0.2	14.0	0.2	6.2
Nottinghamshire***	<0.1	3.4	1.6	28.9
Peak District	1.7	93.8	0	0
Rutland	0.1	3.5	0	0
Total	21.5	1,303.5	5.5	80.6

* Relates solely to aggregates uses and related reserves and excludes industrial uses and dormant sites

** Includes Derby

*** Includes Nottingham

Source: East Midlands Aggregates Working Party

8.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

8.4.1 National

UK

Although reuse and recycling rates for industrial wastes are increasing, due to the combined effects of statutory, reputational and financial drivers, there are still high levels of waste being disposed of, with limited opportunity for recycling hazardous and very low-level radioactive materials. There is pressure to achieving as close to zero landfill as possible throughout the UK^{157, 158}.

Commercial and industrial waste data is not routinely collated. Defra carried out a national survey of commercial and industrial waste at the end of 2010 This survey collected data from 4,074 businesses, plus data from pollution, prevention and control returns (PPC) and other sources, and was designed to produce estimates of arisings at a national level. Commercial and industrial waste is subject to similar

¹⁵⁷ Wales Waste Information 2008, Environment Agency, <http://www.environment-agency.gov.uk/research/library/data/111408.aspx>

¹⁵⁸ [Scotland's Zero Waste Plan Data, Scottish Environment Protection Agency, June 2010, http://www.sepa.org.uk/waste/waste_data/zero_waste_plan_data.aspx](http://www.sepa.org.uk/waste/waste_data/zero_waste_plan_data.aspx)

pressures as municipal waste, namely increased waste prevention, adoption of recycling and reuse alternatives and reduced reliance on landfill.

8.4.2 East Midlands

- Landfill: Urgent alternative options to landfill are required (landfill facilities will run out within the next 8 years¹).
- C&I Waste: This makes up nearly half of the controlled waste produced in the region, which is a significant problem in terms of disposal.
- Mineral and aggregate extraction: The East Midlands region may be subject to further mineral and aggregate extraction, which may affect the tranquil areas and landscapes.

8.5 Likely Evolution of the Baseline

8.5.1 National

UK

Non-radioactive waste management in the UK is moving towards greater reuse and recycling and less landfill. Between 2002 and 2007 in the UK, there was 19.5% decrease in waste disposed of in landfill sites. This includes waste produced by households, commerce and industry and construction and demolition.¹⁵⁹

Hazardous waste production in England and Wales has decreased since 2004 by 17%. The majority of the decrease is due to the reduction in liquid inputs to one treatment facility on Teesside in 2009.¹⁶⁰

England

In England, the total amount of non-radioactive waste sent to landfill has decreased from 80,000,000 tonnes annually in 2000/01 to 72, 500,000 tonnes in 2004/05 at licenced landfill sites: with falls from 50% to 44% for industrial and commercial waste between 1998/99 and 2002/03.⁴ Between 1998/99 and 2002/03 there was a 1% reduction in the total amount (in tonnes) of commercial and industrial waste produced in England. Within this total, industrial waste had reduced to 38,000,000 tonnes in 2002/3 while the amount of commercial waste had grown to 30,000,000 tonnes. During this period, the tonnage of commercial and industrial waste sent to landfill has decreased, with more waste handled by transfer

¹⁵⁹ Waste Strategy for England 2007, Defra

¹⁶⁰ Environment Agency Waste Trends, <http://www.environment-agency.gov.uk/research/library/data/123472.aspx>

stations and treatment facilities¹⁶¹. In 2002/3 for the first time, recycling and reuse had overtaken landfill as the most common method of waste management. Overall 44% was sent to landfill and 45% recycled.

Defra has established targets for England which includes a greater focus on waste prevention seeking to achieve a fall of 50% per person of household waste arising. Recycling and composting of household waste targets have been established - at least 40% by 2010, 45% by 2015 and 50% by 2020; and recovery of municipal waste - 53% by 2010, 67% by 2015 and 75% by 2020.¹⁶²

On the basis of the policies set out in Waste Strategy for England 2007, levels of commercial and industrial waste landfilled are expected to fall by 20% by 2010 compared to 2004. The Government is committed to Waste Framework Directive target to recover at least 70% of construction and demolition waste by 2020.

8.5.2 East Midlands

In terms of future trends, landfill capacity for the East Midlands has fallen from over 87 million cubic metres in 2007 to under 68 million cubic metres by 2009 (**Table 8.7**).

Table 8.7 Waste Capacity in 2005 and Projected 2020 Levels in the East Midlands* (thousand tonnes)

	Capacity	Recycling/ Composting	Landfill Diversion	Re-use	Disposal	Total
Municipal Solid Waste	Existing 2005	595	260	0	1,711	2,566
	Requirement 2020	1,480	840	0	640	2,960
Total	Existing 2005	3,031	1,907	926	5,583	12,447
	Requirement 2020	9,621	840	4,342	7,352	22,155

* Includes the whole of the Peak District National Park

Source: Waste Planning Guidance for EMRA, SLR Consulting Ltd (August 2006)

8.6 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

There were no significant effects identified in the assessment against this topic.

¹⁶¹ Commercial and Industrial Waste in England: Statement of aims and actions 2009, Defra, October 2009, <http://www.defra.gov.uk/environment/waste/topics/documents/commercial-industrial-waste-aimsactions-091013.pdf>

¹⁶² Waste Strategy for England 2007, Defra

9. Cultural Heritage

9.1 Introduction

Cultural heritage, including architectural and archaeological heritage, within this context is defined as below-ground and upstanding evidence of past human activity and encompasses artefacts, buried and underwater archaeological sites, earthworks, buildings, battlefields, historic gardens, historic landscapes, wrecks, hedgerows and ancient woodland.

There are links between the cultural heritage topic and other topics in the SEA, specifically landscape and material assets (land use and materials).

9.2 Summary of Plans and Programmes

9.2.1 International

The **World Heritage Convention** aims to promote co-operation amongst nations to protect heritage that is of such outstanding value that its conservation is important for current and future generations; and established a register of World Heritage Sites. It is intended that properties on the World Heritage List will be conserved for all time. Member states commit themselves to ensure the identification, protection, conservation, and presentation of World Heritage properties.

The World Heritage Committee's **Operational Guidelines for the Implementation of the World Heritage Convention (2008)** set out: the procedure from the inscription of properties on the World Heritage List and the List of World Heritage in Danger; the protection and conservation of World Heritage properties; the granting of International Assistance under the World Heritage Fund; and the mobilisation of national and international support in favour of the Convention.

The **UNESCO Convention for the Protection of the Archaeological Heritage of Europe (revised)** is a Europe-wide international treaty which establishes the basic common principles to be applied in national archaeological heritage policies. It supplements the general provisions of the **UNESCO World Heritage Convention (1972)** and aims to protect archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study. It sets out a framework which requires the member states to:

- maintain an inventory of archaeological heritage and designated protected monuments and areas;
- create archaeological reserves; and

- for finders of any element of archaeological heritage to report and make it available to the competent authority.

The ***European Convention on the Protection of the Archaeological Heritage (1992)*** made a number of important agreements including setting the definition of archaeological heritage as ‘all remains and objects and any other traces of mankind from past epochs....shall include structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other kinds as well as their context, whether situated on land or under water.

9.2.2 National

UK

The ***Ancient Monuments and Archaeological Areas Act (1979)*** provides for the scheduling of ancient monuments and offers the only legal protection specifically for archaeological sites. The ***Planning (Listed Buildings and Conservation Areas) Act (1990)*** outlines the level of protection received by listed buildings, scheduled monuments and buildings within Conservation Areas.

There are a number of other Acts which afford protection to cultural and historical assets, including the ***Protection of Wrecks Act (1973)***, which provides protection for shipwrecks of historical, archaeological or artistic value; the ***Protection of Military Remains Act (1986)***, which provides protection for the wreckage of military aircraft and designated military vessels, and the ***Treasure Act (1996)***, which sets out procedures for dealing with finds of treasure, its ownership and rewards, in England, Wales and Northern Ireland.

Conservation areas were introduced by the ***Civic Amenities Act 1967*** and are designated for their special architectural and historic interest. Most conservation areas are designated by the local planning authority. English Heritage can designate conservation areas in London, where they have to consult the relevant London Borough Council and obtain the consent of the Secretary of State for National Heritage. The Secretary of State can also designate in exceptional circumstances - usually where the area is of more than local interest.

At a national level, the draft ***Heritage Protection Bill*** contains provisions to unify the designation and consent regimes for terrestrial heritage assets, and transfer responsibility for designation of these assets. It also contains provisions to reform the marine heritage protection regime in England and Wales by broadening the range of marine historic assets that can be protected. The draft Bill is based on the proposals set out in the White Paper, ***Heritage Protection for the 21st Century (2007)***, and is one element of a wider programme of on-going heritage protection reforms. There are however, no current plans to enact the Bill and it is not known whether its provisions will become statute.

The Department for Culture, Media and Sport White Paper ***Heritage Protection for the 21st Century (2007)*** sets out a strategy for protecting the historic environment, based on three core principles: developing a unified approach to the historic environment; maximising opportunities for inclusion and

involvement; and supporting sustainable communities by putting the historic environment at the heart of an effective planning system.

England

The National Planning Policy Framework (NPPF) (2012) expects local planning authorities to set out in their local plan a positive strategy for the conservation and enjoyment of the historic environment and in doing so recognise that heritage assets are an irreplaceable resource. The Framework sets out the core land use planning principles that should underpin both plan-making and decision-taking and in doing so expects planning to “conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations”.

When considering the impact of a proposed development on the significance of a designated heritage asset, the Framework expects great weight to be given to the asset’s conservation. The more important the asset, the greater the weight should be. The Framework explains that significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. As heritage assets are irreplaceable, the Framework expects any harm or loss to require clear and convincing justification. Where a proposed development will lead to substantial harm to or total loss of significance of a designated heritage asset, “local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial public benefits that outweigh that harm or loss”, or all of the criteria set out in paragraph 133 (mostly relating to the lack of a viable use) apply.

English Heritage, the Government's statutory adviser on the historic environment in England, has published a number of guidance documents for the protection of the historic environment, including ***Wind Energy and the Historic Environment (2005)***, ***Biomass Energy and the Historic Environment (2005)***, ***Climate Change and the Historic Environment (2005)*** and ***Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (2008)***.

9.2.3 East Midlands

No relevant regional plans or programmes were identified under this topic.

9.3 Overview of the Baseline

9.3.1 National

UK

The UK has over 459,000 listed buildings, approximately 33,720 scheduled monuments, 2,416 historic parks and gardens, in excess of 10,259 conservation areas and 28 World Heritage Sites.¹⁶³

England

In England there are approximately 374,081 listed building entries, 19,717 scheduled monuments, 1,601 registered historic parks and gardens, 9,080 conservation areas, 43 registered historic battlefields, 46 designated wrecks and 17 World Heritage Sites. Nearly 19,446 sites in England are 'at risk'.

The density of shipwreck remains in the English territorial sea is amongst the highest in the world due to the combined effects of historically high volumes of shipping traffic, a long history of seafaring and an often hazardous coastline.¹⁶⁴

English Heritage have identified the following proportions of heritage sites as at risk within England:

- 3.1% of grade I and II listed buildings;
- 7.4% of conservation areas (from those that were included within the report);
- 17.2% of scheduled monuments;
- 6.1% of registered parks and gardens;
- 14% of registered battlefields, and;
- 17% of protected wreck sites¹⁶⁵.

A nationwide survey of conservation areas, conducted by English Heritage and the 75% of England's local planning authorities who responded, indicates that approximately 1 in 7 is at risk from neglect, decay or unsympathetic change¹⁶⁶. The main threats identified were:

¹⁶³ Department of Culture, Media and Sport, 2009, <http://www.culture.gov.uk/4168.aspx>

¹⁶⁴ English Heritage, <http://www.english-heritage.org.uk/caring/listing/what-can-we-protect/listed-buildings/>

¹⁶⁵ English Heritage, 2010, Heritage at Risk Summary, <http://www.english-heritage.org.uk/publications/har-2010-summary/>

¹⁶⁶ http://www.english-heritage.org.uk/content/publications/publicationsNew/heritage-at-risk/Conservation_Areas_at_Risk/caar-booklet-acc.pdf

- unsympathetic replacement doors and windows (83% of conservation areas);
- poorly maintained roads and pavements (60%);
- the amount of street clutter (45%);
- loss of boundary walls, fences or hedges (43%);
- unsightly satellite dishes (38%);
- the effects of traffic calming or traffic management (36%);
- alterations to front elevations, roofs and chimneys (34%);
- unsympathetic new extensions (31%);
- the impact of advertisements (23%); and
- neglected green spaces (18%).

9.3.2 East Midlands

The East Midlands Region played a leading role in the industrial revolution, as reflected in the Derwent Valley Mills World Heritage Sites, the only WHS in the Region. A legacy of ancient road networks, the Civil War, and historic wealth from sheep farming, leaves the East Midlands with a considerable range of heritage assets. This is reflected in the high number of designated places of archaeological, architectural and historic importance, on a region wide, per capita basis. Waterways such as the Grand Union Canal are an integral part of the region's heritage. The region contains many historic market towns such as Stamford. The number and distribution of cultural heritage assets is set out in **Table 9.1**.

Table 9.1 Cultural heritage assets by authority

Authority	Listed Buildings	Museums	Scheduled Monuments	Registered Parks & Gardens and Battlefields	Conservation Areas
Derbyshire	5,569	36	476	30	272
Derby	372	8	7	3	14
Leicestershire	3,915	18	181	14	200
Leicester	388	13	10	6	22
Rutland	1,398	3	28	2	34
Lincolnshire	6,936	37	478	28	155

Authority	Listed Buildings	Museums	Scheduled Monuments	Registered Parks & Gardens and Battlefields	Conservation Areas
Northamptonshire	6,448	32	174	29	159
Nottinghamshire	3,762	22	157	17	128
Nottingham	791	3	10	8	29

The East Midlands also contains important testimony to the industrial heritage of the region including the Derwent Valley Mills World Heritage Site and the remaining relics of the coal industry. The network of waterways is also an integral part of the region's industrial past, linking historic buildings and structures with the natural environment. The region's strategic river corridors (the Nene, Trent, Soar, Welland, Witham, Derwent and Dove and their tributaries), if managed correctly, have the potential to deliver economic, social and environmental benefits to the region. The East Midlands Strategic River Corridors Project aims to *'bring a holistic approach to the management and enhancement of the natural, cultural and historic environment of the region's strategic river corridors.'*

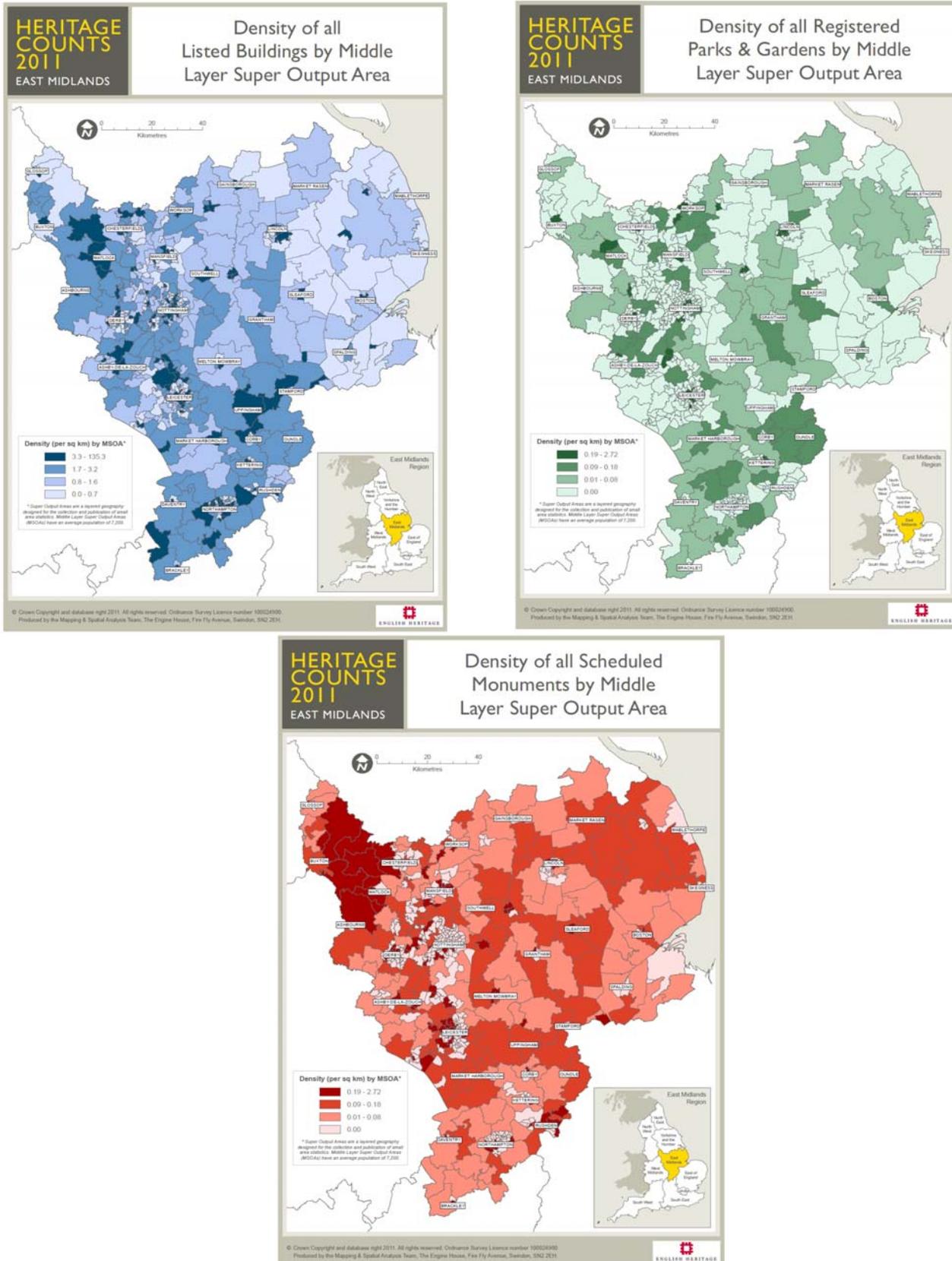
The diverse character of the region's built environment reflects the history of the development of its settlements. Many buildings use locally-distinctive materials and building styles. Throughout the 20th century, local distinctiveness has been increasingly eroded by the use of standardised designs and materials. The use of the car has led to significant suburban and, in the past, ribbon development often of little character distinctiveness. However, the region is making uneven progress towards protecting, enhancing and managing the diversity of cultural and archaeological assets, and still ranks below the national average.

East Midlands Regional Assets totals (2011)

- World Heritage Sites 1
- Scheduled Monuments 1,512
- Listed Buildings Grade 1,993
- Listed Buildings Grade II* 1,868
- Listed Buildings Grade II 26,762
- Total Listed Buildings 29,631
- Registered Parks and Gardens 138
- Registered Battlefields 5
- Conservation Areas 1,101
- Designated Collections 7
- Accredited Museums 103

Figure 9.1 maps the density of key heritage assets in the East Midlands.

Figure 9.1 Density of heritage asses in the East Midlands



The East Midlands has more than its fair share of the most intractable cases of heritage at risk. In 2011 a higher proportion of grade I and II* listed buildings (140 entries or 4.5% of grade I/II* buildings) are at risk than the national average (3%). However only 7% of scheduled monuments are at risk – the lowest of any region¹⁶⁷ well below the national figure of 17.2 per cent. Since 1999 the proportion of Grade I and II* buildings at risk has fallen from 5.1 per cent to 4.6 per cent in both 2009 and 2010. Of the entries on the 1999 Buildings at Risk register, only 42.9 per cent have been removed, compared to 50.7 per cent nationally. Other assets at risk in 2010 included 5.1 per cent of the registered parks and gardens and 6.2 per cent of conservation areas (down from 15 per cent in 2009, although this figure reflects a reassessment of the criteria following the introduction of the indicator in 2009). None of the East Midlands' 5 registered battlefields were at risk in 2010 (**Table 9.2**)¹⁶⁸.

Table 9.2 Assets at Risk in the East Midlands, 2008 to 2010 and Baseline Year

	Year	Percentage at Risk	Number at Risk
Scheduled Monuments	2009	9.0	130
	2010	7.7	117
Registered Battlefields	2008	20.0	1
	2009	0.0	0
	2010	0.0	0
Protected Ship Wrecks	2008	N/A	0
	2009	N/A	0
	2010	N/A	0
Grade I and II* Building Entries	1999	5.1	161
	2009	4.6	132
	2010	4.6	132
Registered Parks and Gardens	2009	4.4	6
	2010	5.1	7
Conservation Areas	2009	15.0	107
	2010	6.2	55

The region has a rich diversity of settlements such as Stamford, Lincoln, Louth, Nottingham and Leicester, which are outstanding in terms of urban design, but have suffered to varying degrees from a

¹⁶⁷ English Heritage (2011) Heritage Counts: East Midlands

¹⁶⁸ East Midlands Councils (2011) The East Midlands in 2009/10

lack of integrated urban design and a shortage of quality architecture. The region also contains Boston, the second most important medieval port in the country, and Victorian seaside resorts.

Derwent Valley Mills World Heritage Site consists of 24km of the lower Derwent Valley in Derbyshire stretching from Matlock Bath in the north to Derby city centre in the south. It includes a series of historic mill complexes; river weirs; and associated settlements and transport networks. It combines elements of a relict landscape in which the evolutionary process of industrialisation came to an end leaving significant distinguishing features visible in material form. Late 18th and 19th century industrial housing has survived even more than the mill structures; the factory villages were seen as exemplars demonstrating key components of community development. Kedleston Hall is a Grade I neo-classical mansion set in landscape gardens and park. The hall is set in open countryside to the north west of Derby and the extent of its setting has been defined in a study by the National Trust. In Leicester can be found the Jewry Wall is a rare example of Roman walling which has survived for nearly 2000 years. The Jewry Wall is the second largest piece of surviving Roman building in England. Its two arched doorways formed the entrance to the Roman public bathhouse the remains of which are laid out in front of the Wall. In Leicester an Archaeological Alert Area has been designated for the historic core of the city including the prehistoric settlement; the later Roman civitas; and the medieval and post-medieval town and suburbs.

In and surrounding Derby can be found several Scheduled Monuments including Derby Racecourse Roman Vicus and Cemetery and Mackworth Medieval Settlement. Examples of Scheduled Monuments around Leicester include Leicester Castle; Kirby Muxloe Castle; Leicester Abbey; and Raw Dykes Roman Aqueduct. Scheduled Monuments around Nottingham include the Medieval City Walls; Lenton Priory; and Nottingham Castle. Sites and Monuments Records form the bulk of known archaeological sites in the 3-Cities sub region; however there is also potential for unknown sites to be discovered during development in any location.

In 1964 the Council for British Archaeology considered that Newark was one of only 51 towns in Great Britain *so splendid and so precious that ultimate responsibility for them should be a national concern*. Newark has a built environment of a nationally recognised quality due to the architecture; compactness of the medieval street scene; style of buildings that contribute to the impressive physical character of the town. Scheduled Monuments include Newark Castle and the Civil War Defences. During the Civil War Newark was a Royalist stronghold and many of the military earthworks that were built are some of the finest in existence.

Derbyshire County Council has identified the historic core of Chesterfield town centre as an area of particular archaeological interest where considerable significant archaeological evidence may survive. In Bolsover the historic core of the town has also been designated as an Area of Archaeological Interest. The most prominent feature connected with the early history of Worksop known as the Gateway to the Dukeries was its Priory which is now listed on the English Heritage register of Buildings at Risk. The Dukeries is so known because it used to contain five ducal residences in proximity to one another

including Clumber Park principal seat of the Dukes of Newcastle but now owned by the National Trust and Wellbeck Abbey principal seat of the Dukes of Portland.

Southwell is a small country town of outstanding architectural and historic interest situated in an attractive landscape setting with Southwell Minster at its heart.

Lincoln has a long history, from prehistoric settlement and Roman military, to the Norman Castle and Cathedral. The City has a significant number of listed buildings and Scheduled Ancient Monuments, including 27 Roman Monuments.

9.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

9.4.1 National

UK

Although from 2000 to 2007 there has been a steady decrease in the number of buildings identified as at risk, for the first time between 2007 and 2008, the number of entries within the Buildings at Risk Register rose for the first time¹⁶⁹. Furthermore, the average cost of repairing each building on the Register has steadily increased.

Redundancy is a major factor driving listed buildings into risk. The kinds of historic buildings now at greatest risk are those associated with defence (15%), agriculture (8%) and manufacturing industry (13%).

There are concerns that the current recession will reduce public spending which will further reduce conservation staff for local authorities and reduce grants and subsidies to problem sites at a time when there will be an reduction in the willingness of developers to take on more challenging buildings at risk, an increase in vacancy rates and a decrease in funds owners will be able to invest in repair and maintenance.

East Midlands

Issues include:

- The capacity of historic settlements to accommodate further development, especially

¹⁶⁹ English Heritage, Heritage at Risk Report 2010, <http://www.english-heritage.org.uk/publications/har-2010-report/>

Lincoln, but also smaller settlements such as Stamford.

- Development of tourism in sensitive environments such as the Peak District National Park and environs.
- Urban intensification of the principal urban areas and other key settlements.
- Regeneration of mining communities in the Northern Sub-area.
- Directing additional growth to rural and coastal areas could potentially result in the need to develop smaller settlements where the historic character can more easily be 'swamped'. In general, the effect of the draft Review will not be to increase development in more rural parts of the region.

9.5 Likely evolution of the baseline

9.5.1 National

UK

The current trend in cultural heritage condition is generally towards little change in the number of historic assets and a decline in the percentage that are at risk.¹⁷⁰

English Heritage report that there has been little change in the total number of historic assets between 2002 and 2009; the total number of listed buildings in England has increased by 0.9% during this period with the largest increase in Grade II* (1.4%). The number of scheduled monuments has increased by 1.9% over the same period whilst registered parks and gardens increased by 7.3% (104) between 2002 and 2009. The number of scheduled monuments increased by 1.9% between 2002 and 2009.¹⁷¹

9.5.2 East Midlands

- In 2011 a higher proportion of grade I and II* listed buildings (140 entries or 4.5% of grade I/II* buildings) are at risk than the national average (3%). However only 7% of scheduled monuments are at risk – the lowest of any region¹⁷² well below the national figure of 17.2 per cent. Since 1999 the proportion of Grade I and II* buildings at risk has fallen from 5.1 per cent to 4.6 per cent in both 2009 and 2010. Of the entries on the 1999 Buildings at Risk register, only 42.9 per cent have been removed, compared to 50.7 per cent nationally. Other assets at risk in 2010 included 5.1 per cent of the registered parks and gardens and 6.2 per

¹⁷⁰ http://www.english-heritage.org.uk/hc/upload/pdf/HC08_National_Acc.pdf

¹⁷¹ English Heritage, Heritage Counts 2009, England, http://hc.english-heritage.org.uk/upload/pdf/HC09_England_Acc.pdf?1286268742

¹⁷² English Heritage (2011) Heritage Counts: East Midlands

cent of conservation areas (down from 15 per cent in 2009, although this figure reflects a reassessment of the criteria following the introduction of the indicator in 2009). None of the East Midlands' 5 registered battlefields were at risk in 2010

9.6 Assessing Significance

Table 9.1 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on cultural heritage. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 9.1 Approach to Determining the Significance of Effects on Cultural Heritage

Effect	Description	Illustrative Guidance
++	Significant positive	<ul style="list-style-type: none"> Alternative would have a significant and sustained positive impact on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species) Alternative would have a strong positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function). Alternative will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to such sites.
+	Positive	<ul style="list-style-type: none"> Alternative would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species). Alternative may have a positive net effect on local biodiversity (e.g. – through reduction in disturbance/pollutant emissions, or some habitat creation leading to temporary improvement to ecosystem structure and function). Alternative will enhance existing public access to areas of wildlife interest in areas where there is some demand for such sites.
0	No (neutral effects)	<ul style="list-style-type: none"> Alternative would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species). Alternative would not affect public right of way or access to areas of wildlife interest.
-	Negative	<ul style="list-style-type: none"> Alternative would have minor residual impact on European or national designated sites and/or protected sites (e.g. – prevents reaching one of the conservation objectives on site, short term decrease in population of designated species). These impacts could not be effectively avoided but could be effectively compensated for. Alternative would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through a minor increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function). Alternative will decrease public access to areas of wildlife interest in areas where there is some demand for such sites.
--	Significant negative	<ul style="list-style-type: none"> Alternative would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for. Alternative would have strong negative effects on local biodiversity (e.g. – through an minor increase in disturbance/pollutant emissions, or considerable loss of habitat leading to long term loss of ecosystem structure and function).
?	Uncertain	<ul style="list-style-type: none"> From the level of information available the impact that the Alternative would have on this objective is uncertain.

9.7 **Assessment of Significant Effects of Retention, Revocation and Partial Revocation**

Table 9.2 summarises the significant effects identified in the detailed assessment of the East Midlands Plan policies against the cultural heritage topic.

Table 9.2 Significant effects against the cultural heritage topic

Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
8. Spatial Priorities in and around the Peak Sub-area	Revocation	0	+	++/?	The policy seeks to protect and enhance the qualities of the Peak Sub-area, and the Peak District National Park in particular, whilst recognising the need for modest development. Whilst the longer term impacts are likely to be positive but uncertain in their precise outcomes, no differences between revocation and retention are anticipated.
	Retention	0	+	++/?	
27. Regional Priorities for the Historic Environment	Revocation	++	++/?	++/?	This criteria-based policy sets out clear criteria for the protection and enhancement of cultural heritage. As such it is positive in character, with broadly similar impacts between retention and revocation. Notwithstanding the provisions of the NPPF, however, greater uncertainty over the consistency of its use and implementation at the local level could occur over the term.
	Retention	++	++	++	
31. Priorities for the Management and Enhancement of the Region's Landscape	Revocation	+	++	++	This criteria-based policy seeks to promote a partnership approach to landscape protection and enhancement. As such it is positive in character, with broadly similar impacts between retention and revocation. However, over the longer term, the outcomes of a more fragmented approach could be uncertain.
	Retention	+	++	++	
Lincoln SRS10. Lincoln Cathedral	Retention	++	++	++	This is a straightforward policy which seeks to protect the visual qualities of the dominance of, and approach to Lincoln Cathedral. The effects are likely to be significantly positive over time and in retention or revocation.
	Revocation	++	++	++	

9.7.1 **Effects of Revocation**

The East Midlands Regional Plan Policy 27 is concerned with the protection and enhancement of the historic environment. Revocation will not affect the intent behind the policy as existing legislation protecting listed buildings, scheduled monuments, conservation areas and registered parks and gardens remain in place.

Paragraphs 126 - 141 of the NPPF set out strong national policy on conserving and enhancing the historic environment. It states that local planning authorities should set out in their Local Plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats.

When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be (paragraph 132).

The most important cultural heritage sites are subject to statutory protection. This is supported by national planning policy for the protection and conservation of the historic environment. Following revocation of regional strategies, local authorities would still need to continue to work together on conservation, restoration and enhancement of the heritage and historic environment.

In planning for the historic environment, local authorities should continue to draw on available information, including data from partners, to address cross boundary issues; they should also continue to liaise with English Heritage to identify and evaluate areas, sites and buildings of local cultural and historic importance.

9.7.2 Effects of Partial Revocation

The effects of partial revocation concern either:

- Revoking all the quantified and spatially specific policies and retaining the non spatial policies; or
- Retention of policies, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on climate change associated with the revocation of the quantitative policies are summarised in **Table 9.2**. Revocation is not judged to be different under revocation or retention for the quantified and/or spatially-specific policies.

The assessment has found that there are no policies in the East Midlands Regional Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

9.7.3 Effects of Retention

Retention of the regional strategy would result in continuation of the baseline (subject to factors such as the level of English Heritage funding). Because of the strong planning policy and legal protection given to

heritage assets, many damaging activities are caused by factors outside of the control of the planning system.

9.8 Mitigation Measures

As revocation is not identified to have any effects on cultural heritage no mitigation measures have been identified.

10. Landscape and Townscape

10.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the regional strategies on landscape and townscape. Information is presented for both national and sub-regional levels.

Landscape in this context is defined by **The European Landscape Convention** as ‘an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors’. This definition is stated as covering natural, rural, urban and peri-urban (i.e. the urban-rural fringe) and includes land, inland water and marine areas. For the purposes of this appraisal though, landscape is taken to apply to rural areas and townscape to urban areas. Visual effects are those effects that influence how people see a landscape or townscape, such as the erection of a building.

10.2 Summary of Plans and Programmes

10.2.1 International

The **European Landscape Convention** is principally directed at the national level, but emphasises the importance of landscape as a cultural as well as an aesthetic asset. It commits signatories to promoting the protection, management and enhancement of landscapes across a country, and integrating landscape considerations into all relevant policies. The Convention’s definition of landscape reflects the idea that landscapes evolve through time, as a result of being acted upon by natural forces and human beings. It also underlines that a landscape forms a whole, the natural and cultural components of which are taken together, not separately. The convention also calls for improved public involvement in landscape matters. The UK became a signatory to the European Landscape Convention in 2006.

10.2.2 National

UK

In the UK, there are numerous Acts governing the protection of the countryside, landscape and natural environment. The **National Parks and Access to the Countryside Act 1949** makes provision for National Parks, confers powers for the establishment and maintenance of nature reserves, makes provision for the recording, creation, maintenance and improvement of public paths and for securing access to open country and confers further powers for preserving and enhancing natural beauty. National Parks are areas of relatively undeveloped and scenic landscape. Designation as a national park may include substantial settlements and human land uses which are often integral parts of the landscape. Land within a national park remains largely in private ownership. There are currently

thirteen national parks in England and Wales. Each park is operated by its own national park authority, with two "statutory purposes":

- to conserve and enhance the natural beauty, wildlife and cultural heritage of the area, and
- to promote opportunities for the understanding and enjoyment of the parks.

The Norfolk Broads and Suffolk Broads has the same status as the national parks in England and Wales. The Broads Authority has powers and duties almost identical to the national parks, but is also the third-largest inland navigation authority. Because of its navigation role the Broads Authority was established under its own legislation on 01 April 1989. The Broads Authority Act 2009 improves public safety on the water.

AONBs are areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes. AONB landscapes range from rugged coastline to water meadows to gentle lowland and upland moors. Natural England has a statutory power to designate land as Areas of Outstanding Natural Beauty

The ***Countryside and Rights of Way Act 2000*** increased the duty of provision of public access to the countryside and strengthened legislation relating to Sites of Special Scientific Interest (SSSIs). In particular, it requires public bodies to further the conservation and enhancement of SSSIs both in carrying out their operations, and in exercising their decision making functions.

The ***Marine and Coastal Access Act 2009*** seeks to ensure clean healthy, safe, productive and biologically diverse oceans and seas, by putting in place better systems for delivering sustainable development of marine and coastal environment.

Other relevant Acts include:

- The ***1967 Forestry Act (as amended 1999)*** restricts and regulates the felling of trees. The ***1968 Countryside Act*** enlarges the function of the Agency established under the National Parks and Access to the Countryside Act 1949, to confer new powers on local authorities and other bodies for the conservation and enhancement of natural beauty and for the benefit of those resorting to the countryside.
- The ***1986 Agriculture Act (with numerous revisions)*** covers the provision of agricultural services and goods, agricultural marketing compensation to tenants for milk quotas, conservation and farm grants.
- The ***Commons Act 2006***, which protects common land and promotes sustainable farming, public access to the countryside and the interests of wildlife.

England

The ***Natural Environment and Rural Communities (NERC) Act 2006*** implements key elements of the Government's Rural Strategy published in July 2004. The NERC Act is designed to help achieve a rich and diverse natural environment and thriving rural communities through modernised and simplified arrangements for delivering Government policy. The NERC Act established a new independent body - Natural England - responsible for conserving, enhancing, and managing England's natural environment for the benefit of current and future generations. The Act made amendments to the both the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000, which further enhance provisions to biodiversity generally and SSSIs in particular.

The ***National Planning Policy Framework (2012)*** includes strong protections for valued landscapes and townscapes as well as recognising the intrinsic character and beauty of the countryside. The importance of planning positively for high quality design is underlined and local and neighbourhood plans are expected to “develop robust and comprehensive policies that set out the quality of development that will be expected for the area”. Planning policies and decisions are expected to respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation.. The Framework states (paragraph 64) that “Permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions”.

The Framework has a number of specific requirements relating to planning and landscape including a clear expectation that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes. Local planning authorities are expected to set criteria based policies against which proposals for any development on or affecting protected landscape areas will be judged. In doing so, distinctions should be made between the hierarchy of international, national and locally designated sites and “great weight” should be given to “conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty”. Local planning authorities in their plan-making are expected to take account of climate change and changes to landscape and contain a clear strategy for enhancing the natural, built and historic environment. Where appropriate, “landscape character assessments should also be prepared, integrated with assessment of historic landscape character and for areas where there are major expansion options assessments of landscape sensitivity”.

10.2.3 East Midlands

No relevant regional plans or programmes were identified under this topic.

10.3 Overview of the Baseline

10.3.1 National

UK

Statutory sites designated (wholly or partially) for their landscape value include National Parks, AONBs, Country Parks, Registered Historic Parks and Gardens, Historic Gardens and Designed Landscapes, National Scenic Areas (NSAs) and Regional Parks (in Scotland) and World Heritage Sites.¹⁷³

Other important (non-statutory) sites include Areas of Great Landscape Value (AGLV) in Scotland; Heritage Coasts (in England and Wales); and National Trust/National Trust for Scotland properties.

The UK has 15 National Parks¹⁷⁴ and (excluding Scotland) 49 AONBs¹⁷⁵. Each National Park is administered by its own National Park Authority whose duty it is to conserve and enhance natural beauty, wildlife and cultural heritage; and to promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public. The Broads Authority in England has a third purpose to protect the interests of navigation¹⁷⁶. The primary purpose of AONB is to conserve and enhance the natural beauty of the landscape.

England

The 'Character of England Landscape, Wildlife and Cultural Features Map' produced in 2005 subdivides England into 159 areas with similar landscape character called National Character Areas (NCA).¹⁷⁷

There are nine National Parks in England; the most recently designated National Park being the South Downs National Park on 31 March 2010). Together with The Broads (which has similar protection to a National Park) they cover 9.3% of the land area in England.

There are 34 AONBs in England, one of which straddles England and Wales (the Wye Valley AONB). AONBs cover 18% of England and Wales.¹⁷⁸ The East Hampshire and Sussex Downs AONB designations were revoked on the 31 March 2010 when the South Downs National Park Designation Order came into effect. In all, AONB designation covers approximately 15 per cent of the land area of England.

¹⁷³ JNCC, landscape designations, <http://www.jncc.gov.uk/page-1527>

¹⁷⁴ Association of National Park Authorities, <http://www.nationalparks.gov.uk/>

¹⁷⁵ National Association of AONB, <http://www.aonb.org.uk>

¹⁷⁶ <http://www.nationalparks.gov.uk/learningabout/factsandfigures.htm>

¹⁷⁷ <http://www.naturalengland.org.uk/ourwork/landscape/englands/character/areas/default.aspx>

¹⁷⁸ See

<http://www.aonb.org.uk/wba/naaonb/naaonbpreview.nsf/Web%20Default%20Frameset?OpenFrameSet&Frame=Main&Src=%2Fwba%2Fnaaonb%2Fnaaonbpreview.nsf%2F%24LU.WebHomePage%2F%24first!OpenDocument%26AutoFramed> (accessed 19.10.2009)

England has been divided into areas with similar landscape character, which are called National Character Areas (NCAs). A total of 159 NCAs have been identified in England. The boundaries of the NCAs are not precise and that many of the boundaries should be considered as broad zones of transition.

Natural England are currently re-writing and re-designing all of England's 159 NCA profiles and aim to publish the first of the new versions from September 2012.

Heritage Coasts are areas defined (they are not statutorily designated) for the beauty and undeveloped nature of the coastline. They represent 33% (1,057km) of England's coastline and are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors. Most Heritage Coasts are within the boundaries of National Parks or AONBs, although some including Lundy, the Durham Coast, and Flamborough Head stand alone.

A national record of nearly 1450 Registered Historic Parks and Gardens which contribute to the landscape is maintained by English Heritage. It is a non-statutory designation but the designation is a material planning consideration.

There are 17 World Heritage Sites in England, the most recent of these to be recognised as such is the Cornwall and West Devon mining landscape which was inscribed by UNESCO in 2006.¹⁷⁹

10.3.2 East Midlands

Key facets of the landscape of the East Midlands are¹⁸⁰:

- The East Midlands has two areas designated for their landscape value: the Peak District National Park and the Lincolnshire Wolds Area of Outstanding Natural Beauty, which together cover 9% of the region. This is the lowest percentage of designated landscape coverage in any region.
- The 89,519 hectares of the Peak District National Park which falls within the East Midlands accounts for 6 per cent of the region's land area;
- The Lincolnshire Wolds AONB is the only designated AONB in the region, accounting for 3 per cent of the land area in the East Midlands, compared with a national average of 15 per cent AONB coverage;
- Outside the designated landscapes, the character of much of the region's landscape is classified as changing or in a neglected state;
- The landscape is classified as having been enhanced across the Fens, Melbourne Parklands and the Leicestershire and Derbyshire coalfields;

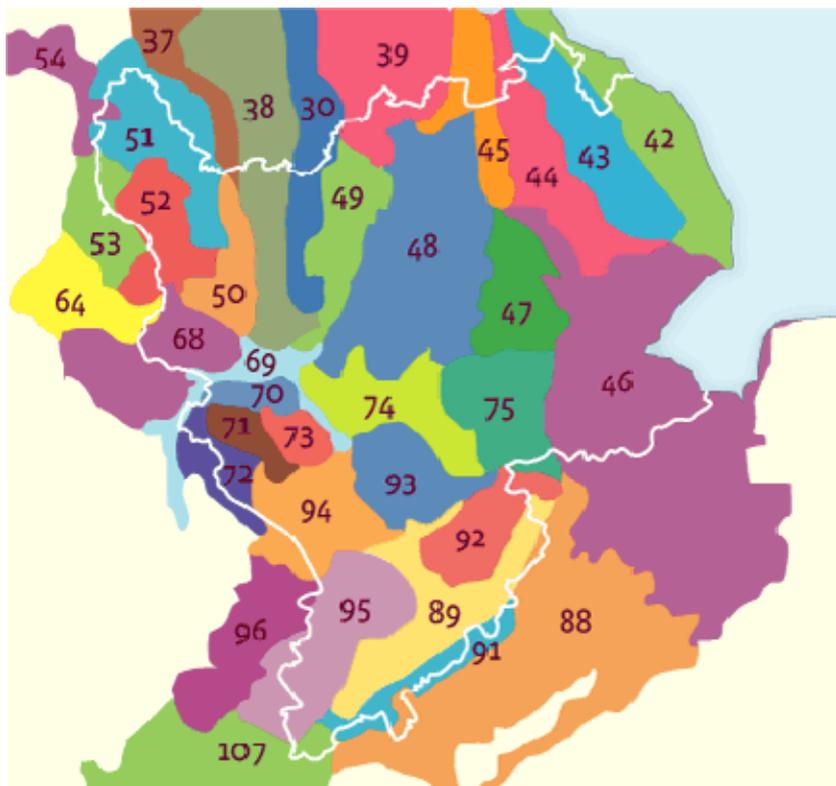
¹⁷⁹ <http://whc.unesco.org/en/list/>

¹⁸⁰ East Midlands Councils (2011) The East Midlands in 2009/10

- The East Midlands region has just 0.3 per cent of England's common land.

The East Midlands Regional Landscape Character Assessment (EMRLCA) identifies 31 regional landscape and seascape character types across the region (**Figure 10.1**). When compared to other regions in England over the period 1999-2003 more of the landscape character of the East Midlands was judged to be diverging from its existing character (26%), a smaller proportion was judged as maintaining its character (44%), a similar proportion as having its character enhanced (11%) and a smaller proportion judged as having its character neglected (19%). This suggests a region where a great deal of change is affecting the landscape, some of which is positive and some negative¹⁸¹.

Figure 10.1 Landscape Character Areas in the East Midlands¹⁸²



30. Southern Magnesian Limestone	51. Dark Peak
37. Yorkshire Southern Pennine Fringe	69. Trent Valley Washlands
38. Nottinghamshire, Derbyshire & Yorkshire Coalfield	70. Melbourne Parklands
39. Humberhead Levels	71. Leicestershire & South Derbyshire Coalfield
42. Lincolnshire Coast & Marshes	72. Mease/Sence Lowlands

¹⁸¹ East Midlands Councils (2011) The East Midlands in 2009/10

¹⁸² <http://www.naturalengland.org.uk/publications/nca/eastmidlands.aspx>

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43. Lincolnshire Wolds 44. Central Lincolnshire Vale 45. Northern Lincolnshire Edge with Coversands 46. The Fens 47. Southern Lincolnshire Edge 48. Trent & Belvoir Vales 49. Sherwood 50. Derbyshire Peak Fringe & Lower Derwent 52. White Peak 53. South West Peak 54. Manchester Pennine Fringe 64. Potteries & Churnet Valley 68. Needwood & South Derbyshire Claylands	73. Charnwood 74. Leicestershire & Nottinghamshire Wolds 75. Kesteven Uplands 88. Bedfordshire & Cambridgeshire Claylands 89. Northamptonshire Vales 91. Yardley-Whittlewood Ridge 92. Rockingham Forest 93. High Leicestershire 94. Leicestershire Vales 95. Northamptonshire Uplands 96. Dunsmore & Feldon 107. Cotswolds
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The East Midlands landscape is under pressure from development, agriculture and poor management and this has led to a reduction in heather, flower rich hay meadows, hedgerows, heathland and ancient semi natural woodland. Schemes to counter the pressure on the East Midlands landscape are underway such as management plans and agri-environment measures. The creation of economically and environmentally sustainable woodlands is taking place in the National Forest and Greenwood Community Forest and areas of degraded landscape, such as former coal mining areas. These woodlands provide a framework for a range of land uses from recreation and tourism to residential and industrial development to aid regeneration.

Table 10.1 sets out the statistics relating to this erosion, amongst which is the halving of tranquillity across all counties with greater change in some, notably Lincolnshire, whilst **Figure 10.2** shows the progressive erosion of tranquil areas across the region between the 1960s and 1990s.

Table 10.1 Change in tranquillity in the East Midlands 1960s - 2007¹⁸³

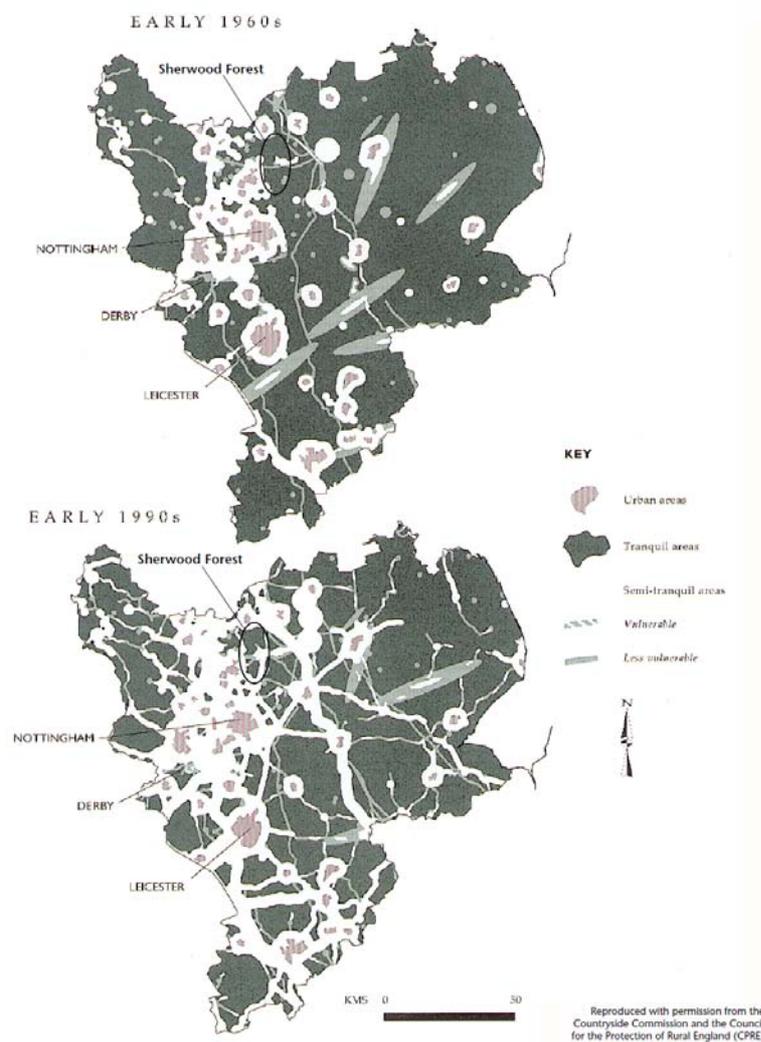
County, Unitary Authority or Metropolitan District	Total area (km ²)	Early 1960s		Early 1990s		2007	
		Disturbed area (km ²)	% of region	disturbed area (km ²)	% of region	disturbed area (km ²)	% of region
City of Derby	78.03	78.03	100.00%	78.03	100.00%	78.03	100.00%
City of Leicester	73.31	73.28	99.95%	73.31	100.00%	73.31	100.00%
City of Nottingham	74.61	74.53	99.88%	74.52	99.87%	74.61	100.00%
Derbyshire County	2550.71	963.96	37.79%	1278.10	50.11%	1462.12	57.32%
Leicestershire County	2083.81	673.59	32.33%	998.64	47.92%	1238.76	59.45%
Lincolnshire County	6102.59	547.74	8.98%	1245.54	20.41%	1907.93	31.26%

¹⁸³ <http://www.cpre.org.uk/resources/countryside/tranquil-places/item/1762-englands-fragmented-countryside-east-midlands-intrusion-statistics>

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Northamptonshire County	2366.99	687.37	29.04%	1198.88	50.65%	1402.59	59.26%
Nottinghamshire County	2086.95	925.59	44.35%	1398.40	67.01%	1504.29	72.08%
Rutland	393.75	56.24	14.28%	115.19	29.25%	192.54	48.90%
East Midlands TOTAL	15810.76	4080.32	25.81%	6460.60	40.86%	7934.19	50.18%

Figure 10.2 Tranquillity in the East Midlands ¹⁸⁴



¹⁸⁴ [http://www.forestry.gov.uk/pdf/fcin16.pdf/\\$FILE/fcin16.pdf](http://www.forestry.gov.uk/pdf/fcin16.pdf/$FILE/fcin16.pdf)

10.4 Environmental Characteristics of those Areas most likely to be Significantly Affected

10.4.1 National

UK

The UK has many important and protected landscapes which may be sensitive to development. The character of the UK's landscapes are broadly being maintained, however 20% show signs of neglect.

The natural environment of the UK is much less 'rich' than 50 years ago and remains under pressure from more intense use of the land and sea; continuing economic development, climate change and increased pressures from public access.

Although it is recognised that some changes in landscape, such as restoration of derelict industrial sites, have led to improvements in the quality of the natural environment, Natural England state that landscape change on the whole is resulting in declining diversity, distinctiveness and ecological richness¹⁸⁵.

10.4.2 East Midlands

In terms of the proposed distribution of total dwellings for the whole of the Plan period (2006-2026), physical constraints appeared to have been taken into account to a large extent. In contrast, they stated that it was more difficult to depict a clear relationship between the distributional strategy and the likely effects on the supply, demand and quality of natural resources such as water and air quality. In some areas, the changes in dwelling provision figures as presented as part of the Proposed Changes and in the final plan further strengthen environmental considerations and constraints within the plan as most of the districts within the Eastern Sub Area see a significant % decrease in allocations (in some districts up to a 45% decrease). The Peak sub area will see a 19% increase (as compared to the Submission Draft figures) in overall dwelling provision over the plan period. However, this looks more significant than it is due to the small overall numbers involved (the 19% only equates to an additional 2,000 houses over the plan period – less than 100 additional houses a year) and it must be remembered that none of this provision includes the Peak District National Park itself.

The overall scale of development will be significant, and will noticeably affect the character of many locations, depending upon the extent to which development will take place within existing built-up areas, or on greenfield sites, and also on the amount of infrastructure built, employment land developed, community facilities provided, traffic generated, and environmental improvements achieved. Nearly three-quarters of all new dwellings are to be provided within the Three Cities and Southern Sub-Areas, with around 40% to be provided within the Three Cities Sub-Area and around 25% to be provided in the

¹⁸⁵ <http://www.naturalengland.org.uk/ourwork/landscape/threats/default.aspx>

Southern Sub-Area. Other areas are also likely to see a significant scale of increase in dwelling provision include a number of districts in the vicinity of the cities of Nottingham, Leicester and Derby.

10.5 Likely evolution of the baseline

10.5.1 National

UK

Over the last century the following landscape character trends have been experienced:¹⁸⁶

- a gradual erosion of local distinctiveness in some areas, through a process of standardisation and simplification of some of the components that make up landscape character;
- a loss of some natural and semi-natural features and habitats such as ancient woodlands and unimproved grassland;
- a decline in some traditional agricultural landscape features such as farm ponds and hedgerows, and a loss of archaeological sites and traditional buildings;
- increased urbanisation, often accompanied by poor design standards and a decline in the variety of building materials, and the importation of urban and suburban building styles into rural areas; and
- a loss of remoteness and reduced tranquillity because of built development and traffic growth.

There are a number of pressures and risks outlined in the *State of the Natural Environment 2008* that may affect the quality of landscapes in England. These include¹⁸⁷:

- **Sea-level rise:** Over the next few decades it is anticipated that there will be major sea incursions inland during storms, particularly on the south and east coasts of England. If measures such as managed retreat are not adopted in low-lying areas, there may be widespread losses of intertidal and coastal habitats. In the coastal zone, sea-level rise may also result in the direct loss of freshwater habitats such as reedbeds and wet grasslands.
- **Fire:** More droughts in the future will make the countryside increasingly vulnerable to wildfire, with potential for heathland, grassland, broadleaved woodlands and bogs to undergo major change in their structure.
- **Grazing management:** More summer droughts may mean that grazing is no longer possible in some open habitats such as fens, grasslands and heathlands due to die-back of vegetation and a lack of drinking water for animals. The spread of diseases (e.g. bluetongue) related to

¹⁸⁶ Natural England, State of the Natural Environment 2008, Landscape Characterisation and Change, <http://www.naturalengland.org.uk/publications/sones/sections.aspx>

¹⁸⁷ Natural England (2008) State of the Natural Environment <http://www.naturalengland.org.uk/publications/sones/default.aspx>

climate change may also reduce livestock numbers and restrict movement, altering grazing patterns and landscapes.

- **Energy production:** The production of biofuels in the countryside may result in changes to landscapes. Wind energy developments are likely to be more common.
- **Development pressure:** Within rural England, the area of developed land has increased by about 4% since 1990. It is expected that the pace of development within England will increase in the future to make up for the current shortfall in housing provision. The effect of this increase pressure for development is likely to be felt most acutely in central and southern England, particularly around identified Growth Areas and Growth Points.

England

Natural England report that in 2008 existing landscape character was being maintained in 51% of England's landscapes, whilst in a further 10% existing character was being enhanced. However, 20% of landscapes were showing signs of neglect.¹⁸⁸

Data from 1990 to 2003 indicates that in England the number of Character Areas with patterns of change that either maintain or enhance character has increased from 36% to 61%. The number of Character Areas with evidence of neglect or erosion of character has decreased. This evidence suggests that the character of the majority of English landscapes, at Character Area scale, is being sustained.

Forestry Commission England seeks to maintain the area of certified woodland and to ensure that 95% of woodland SSSIs are in favourable condition by 2011¹⁸⁹.

The protected nature of National Park and AONB landscapes make it less likely that these landscapes will be affected by some of the risks outlined (e.g. development pressure) although those protected landscapes nearest to existing urban areas are more likely to be at risk.

10.5.2 East Midlands

- **Urban development pressure:** Urban characteristics such as light, noise and traffic pollution are beginning to encroach on rural areas and the urban fringe due to development pressure.
- **Loss of local distinctiveness:** The East Midlands is renowned for the diverse character of its built environment, due to the regional variations in the use of traditional materials. Such variation provides a sense of place which gives the area its character, but this diversity is being lost by the use of standardised designs and materials, the availability of materials such as building stone and of traditional construction skills.

¹⁸⁸ Natural England, State of the Natural Environment 2008, Landscape Characterisation and Change, <http://www.naturalengland.org.uk/publications/sones/sections.aspx>

¹⁸⁹ Forestry Commission England, 2008, Delivery Plan 2008-2012: England's Trees, Woods and Forests

- Low standards of development: Across the region, many new developments have been of a low standard, having suffered from both lack of integrated urban design and a shortage of high quality architecture.
- Pressured landscapes: The Peak District and the Lincolnshire Wolds AONB are being threatened by development in the form of agricultural intensification, residential development, and recreation.
- Renewable energy: The East Midlands may well be targeted for the development of bio energy and new energy crops. While the development of renewable energy is vital to prevent the further acceleration of global warming, these developments may have an impact on the landscape of the region.
- Mineral and aggregate extraction: The East Midlands region may be subject to further mineral and aggregate extraction, which may affect the tranquil areas and landscapes.

10.6 Assessing significance

Table 10.2 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the landscape and townscape objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 10.2 Approach to determining the significance of effects on landscape and townscape

<i>Effect</i>	<i>Description</i>	<i>Illustrative Guidance</i>
++	Significant positive	<ul style="list-style-type: none"> • Alternative would have a significant and sustained positive impact on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species) • Alternative would have a strong positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function). • Alternative will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to such sites.
+	Positive	<ul style="list-style-type: none"> • Alternative would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species). • Alternative may have a positive net effect on local biodiversity (e.g. – through reduction in disturbance/pollutant emissions, or some habitat creation leading to temporary improvement to ecosystem structure and function). • Alternative will enhance existing public access to areas of wildlife interest in areas where there is some demand for such sites.
0	No (neutral effects)	<ul style="list-style-type: none"> • Alternative would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species). • Alternative would not affect public right of way or access to areas of wildlife interest.

Effect	Description	Illustrative Guidance
-	Negative	<ul style="list-style-type: none"> Alternative would have minor residual impact on European or national designated sites and/or protected sites (e.g. – prevents reaching one of the conservation objectives on site, short term decrease in population of designated species). These impacts could not be effectively avoided but could be effectively compensated for. Alternative would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through a minor increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function). Alternative will decrease public access to areas of wildlife interest in areas where there is some demand for such sites.
--	Significant negative	<ul style="list-style-type: none"> Alternative would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for. Alternative would have strong negative effects on local biodiversity (e.g. – through an minor increase in disturbance/pollutant emissions, or considerable loss of habitat leading to long term loss of ecosystem structure and function).
?	Uncertain	<ul style="list-style-type: none"> From the level of information available the impact that the Alternative would have on this objective is uncertain.

10.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 10.3 summarises the significant effects identified in the detailed assessment of the East Midlands Regional Plan policies against the landscape topic.

Table 10.3 Significant effects against the Landscape and Townscape topic

Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
1. Regional Core Objectives	Revocation	0	0	+	This policy includes wide-ranging provision for environmental protection which, whilst not specifically referencing landscape, will have an important influence on how landscape is dealt with as part of wider environmental protection and enhancement. Retention is anticipated to be more positive than revocation, particularly over the longer term, because of the continuity of region-wide programmes for environmental enhancement.
	Retention	+	+	++	
8. Spatial Priorities in and around the Peak Sub-area	Revocation	0	+	++	Protection of the landscape of the Peak District National Park is an important dimension of this policy, and could be expected to yield significant positive effects over time. No differences between revocation and retention are anticipated given the protection afforded to nationally important landscapes in the NPPF and role of the Peak District National Park Plan.
	Retention	0	+	++	
22. Regional Priorities for Town	Revocation	0	+	+	The focus of this policy is on town centre regeneration and enhancing their vitality generally. It might be expected that the

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Regional Plan Policy	Alternative	Score			Commentary
		Short Term	Medium Term	Long Term	
Centres and Retail	Retention	0	+	+	protection and enhancement of townscapes will, on balance, benefit from this attention. Equally, the NPPF makes provision for townscape conservation and enhancement, so no differences between revocation and retention are expected.
28. Regional Priorities for Environmental and Green Infrastructure	Revocation	++	++	++	In combination with other policies relating to biodiversity and woodland, for example, this Policy seeks a step-change in the use of green infrastructure to promote sustainable development. The principle of environmental capacity is introduced and green infrastructure plans expected to be used to help guide the provision of new assets to accompany development. On this basis, a consistent, widespread increase in green infrastructure provision could be expected under retention of the policy, something which could arguably be lost under revocation where, notwithstanding the provisions of the NPPF, a more fragmentary approach might be expected over the longer term.
	Retention	++	++	++	
29. Priorities for Enhancing the Region's Biodiversity	Revocation	+	++	++	Policy 29 is clear on the expectations for biodiversity conservation and enhancement using partnership working to achieve a significant change in the area and quality of the assets across the region. Whilst the NPPF has important provisions for biodiversity conservation and enhancement, retention of the policy is more likely to lead to a consistent approach across local authorities with significantly enhanced long-term outcomes.
	Retention	+	++	++	
30. Regional Priorities for Managing & Increasing Woodland Cover	Revocation	+	++	++	Seeking a significant increase in woodland cover, this policy could yield significant positive outcomes over the medium and longer term, using pan-regional partnership working, a consistent approach across local authorities, and linkages with other policies on biodiversity, green infrastructure and landscape. Revocation is unlikely to be deleterious, but may not yield the potential benefits associated with retention.
	Retention	+	++	++	
31. Priorities for the Management and Enhancement of the Region's Landscape	Revocation	+	++	++	As with related policies, provisions within the NPPF and local policy mean that protection and enhancement of landscape resources will be similar for both retention and revocation of this Regional Plan policy.
	Retention	++	++	++	

10.7.1 Effects of Revocation

The aspirations for the protection and enhancement of landscape and townscape which are communicated through various policies in the East Midlands Regional Plan would not be affected by revocation, in principle. Protection for nationally significant landscapes continues under the NPPF along with provisions for landscape enhancement where appropriate. As identified in the analysis of **Table 10.3**, the most significant effect is likely to be a potential reduction in the effectiveness of sub-regional and region-wide programmes to enhance landscape-related assets such as green infrastructure. However, revocation cannot be judge to be significantly different from retention as the broad policies will be developed through local plans under the guidance of the NPPF.

10.7.2 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies and retaining the non spatial policies; or
- Retention of policies, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on landscape associated with the revocation of the quantitative policies are summarised in **Table 10.3** for Policy 8 where no significant differences between revocation and retention were found.

The assessment has found that there are no policies in the East Midlands Regional Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

10.7.3 Effects of Retention

The effects of retention of the policies relating to landscape and townscape centre on the benefits to be derived from the co-ordination of activity at the region and sub-regional scales to achieve more significant outcomes than might otherwise be the case, particularly for assets such as biodiversity which demand cross-boundary working. Retention of these policies would ensure the continuation of these arrangements which over the longer term could yield significant benefits.

10.8 Mitigation Measures

No immediate mitigation measures are anticipated, as the provisions of the NPPF cover much of what regional policy is seeking to achieve. Over the longer term, however, issues might appear in the effectiveness of the treatment of issues such as biodiversity or green infrastructure provision relating to poor inter-authority co-ordination, or missed opportunities for sub-regional enhancement of these assets at the landscape scale.